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OF EDUCATION**











# INTERIM REPORT

## Committee on School Inquiry Board of Estimate and Apportionment

### *Embracing*

1. Letter of Transmittal
2. The Introduction
3. The Report as a Whole

By DR. PAUL H. HANUS

### *Committee on School Inquiry*

JOHN PURROY MITCHEL

*President of the Board of Aldermen*

WILLIAM A. PRENDERGAST

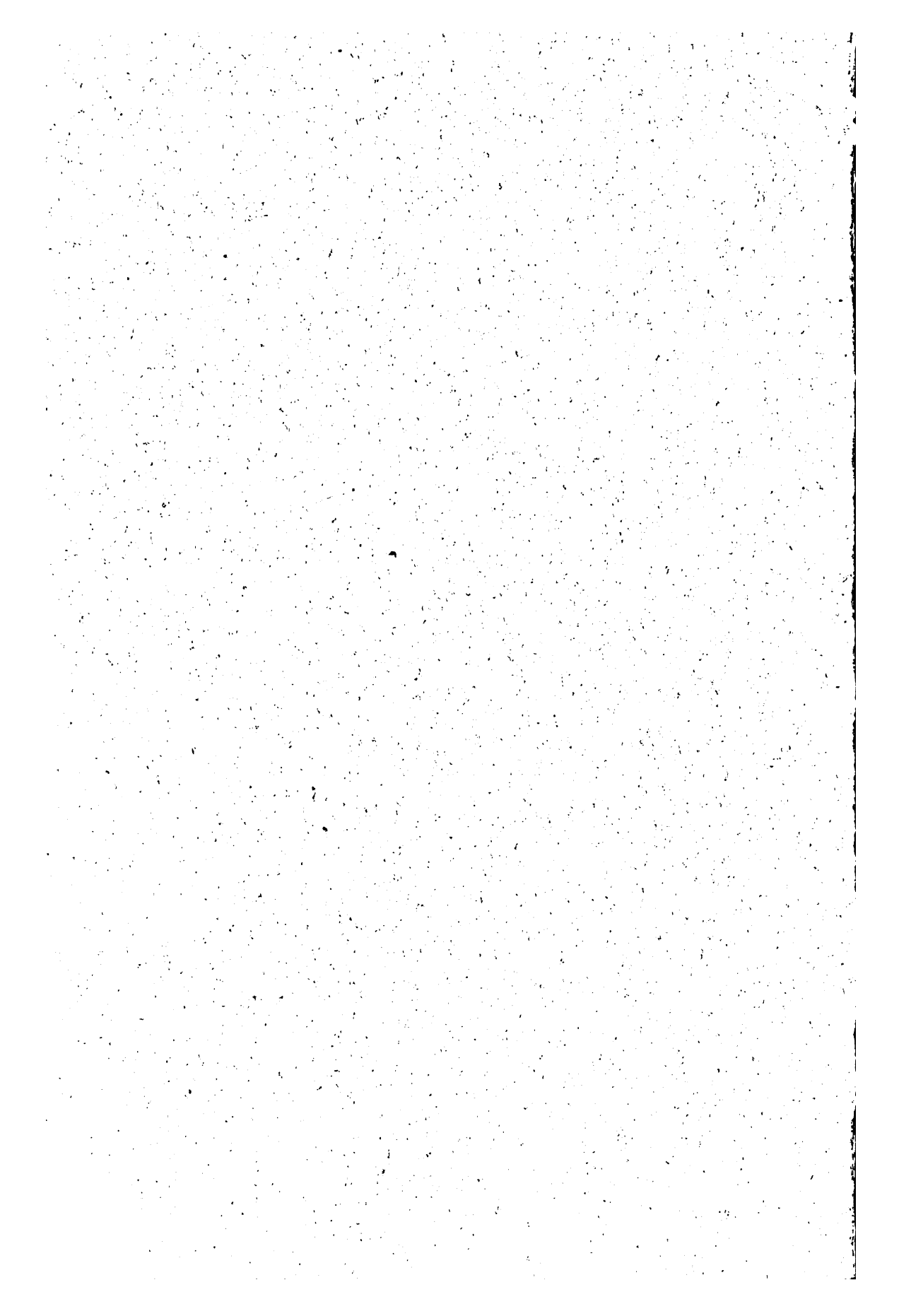
*Comptroller*

CYRUS C. MILLER

*President of the Borough of the Bronx*

CITY OF NEW YORK

1911-1912



**Harvard University**

**DIVISION OF EDUCATION**

ELI H. HANUS  
LESLIE C. MOORE  
LESTER F. DEARBORN  
FRANK W. HOLMES

CAMBRIDGE, MASSACHUSETTS

March 6, 1914.

3.

Dear Mr. Currier:-

trans-  
who  
testi-

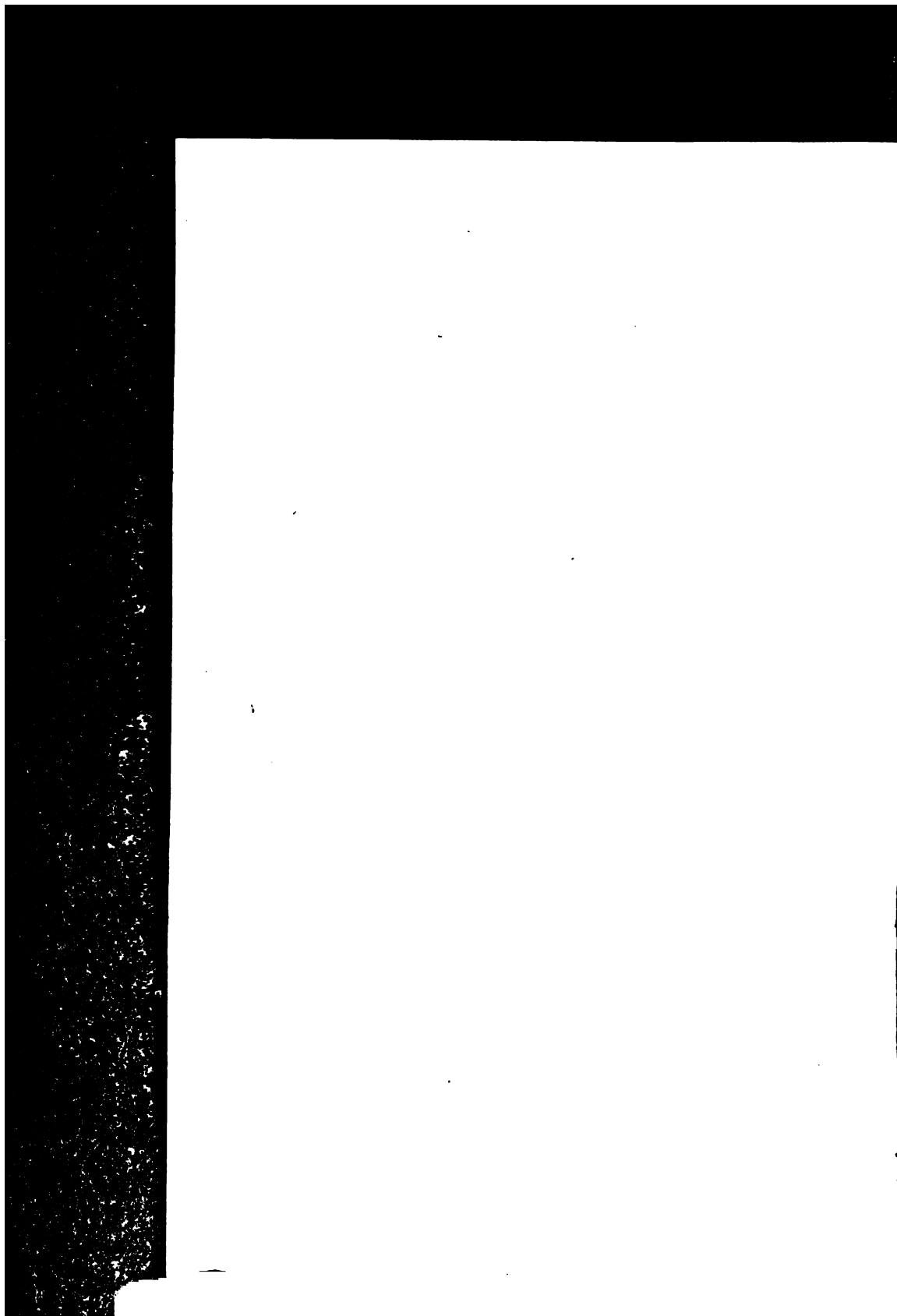
In reply to your letter dated March 5th, 1914, I am sending you herewith a pamphlet which takes the place of the missing pamphlet in the "Interim Reports" on the New York City School Inquiry. This pamphlet was completed after my work in New York was finished. In as much, however, as I am responsible for the study itself and in large part for the form in which it was finally published, I am quite willing it should be included among the "Interim Reports", and bound with the other "Interim Reports" for which I was wholly responsible.

Very truly yours,

ry.

*Paul H. Hanus*

Mr. T. Franklin Currier.





JULY 1, 1913.

*To the Honorable, The Board of Estimate and Apportionment:*

GENTLEMEN: The Committee on School Inquiry herewith transmits the report of Prof. Paul H. Hanus of Harvard University, who served as director of the educational aspects of the Committee's investigation of the public schools of The City of New York.

Respectfully submitted,

JOHN PURROY MITCHEL,

*President, Board of Aldermen,*

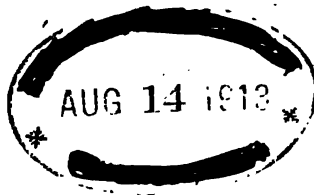
WM. A. PRENDERGAST,

*Comptroller,*

CYRUS C. MILLER,

*President, Borough of The Bronx,*

Committee on School Inquiry.



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REPORT  
ON THE  
EDUCATIONAL ASPECTS OF THE SCHOOL INQUIRY  
PART I

LETTER OF TRANSMITTAL

CITY OF NEW YORK,  
July 1, 1912.

HON. JOHN PURROY MITCHEL, *Chairman*;  
HON. WILLIAM A. PRENDERGAST,  
HON. CYRUS C. MILLER,

*Committee on School Inquiry of the Board of Estimate and  
Apportionment, City of New York.*

GENTLEMEN:

I submit herewith the report of my associates and myself on the educational aspects of the school inquiry, which I have directed since June 1, 1911.

We have not attempted an investigation of all the educational aspects of the school system of New York City; but the report is comprehensive and our recommendations are far-reaching. If carried out, they involve, in important respects, a reorganization of the public school system as a whole, and point out the way to improvements in the details of organization, administration, supervision, courses of study, and teaching.

Though our work concerns specifically the educational aspects of the school system, we studied, at your request, certain budget questions, and two of them—the methods of estimating the need of teachers for elementary schools and for high schools—have been studied in detail. The report consists of two parts, for convenience. Part I contains, besides statistical summaries and an account of the conditions under which our inquiry was carried on, "The Report as a Whole," an interpretation of the entire report including summaries, principal findings and the recommendations based on them. Part II consists of the reports of the specialists on their several fields of inquiry. Without these reports the generalizations of Part I are, for the most part, without the foundation on which they rest. Moreover, these details will be demanded by the professional reader; and some of them, we believe, illustrate methods of studying the problems dealt with that are either new or have not been employed in the study of similar problems heretofore.

PAUL H. HANUS,  
In Charge of Educational Aspects of the School Inquiry.



**REPORT ON**  
**EDUCATIONAL ASPECTS OF THE**  
**PUBLIC SCHOOL SYSTEM**

**OF THE CITY OF NEW YORK**

**TO THE**

**COMMITTEE ON SCHOOL INQUIRY**  
**OF THE BOARD OF ESTIMATE**  
**AND APPORTIONMENT**

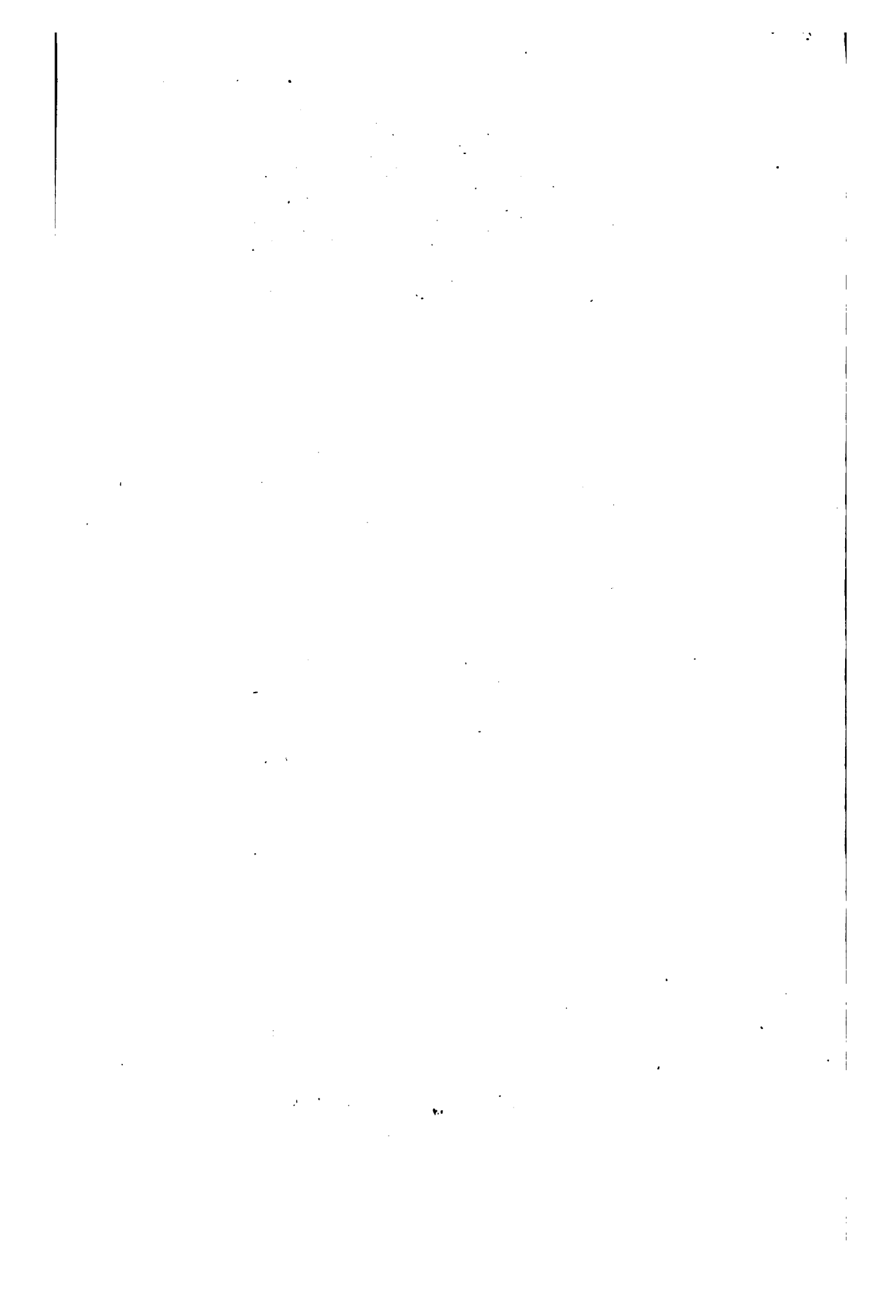
**PART I**

**LETTER OF TRANSMITTAL, INTRODUCTION,**  
**AND**  
**THE REPORT AS A WHOLE**

**BY**

**PAUL H. HANUS**

**CITY OF NEW YORK**  
**1911-1912**



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\*The report on this topic could not be ready in time to be included in the report submitted by me to the Committee P. H. H.

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# INTRODUCTION

PAUL H. HANUS

## A. OUTLINE OF THE ORGANIZATION AND PLAN OF ADMINISTRATION AND SUPERVISION OF THE SCHOOL SYSTEM OF THE CITY<sup>1</sup>

### BOARD OF EDUCATION

#### MEMBERS

1. Appointed by the Mayor for a term of five years.
2. From boroughs: Manhattan, 22; The Bronx, 4; Brooklyn, 14; Queens, 4; Richmond, 2; total, 46 members.
3. Each member assigned by the President to membership of one of the forty-six Local School Boards.

#### POWERS AND DUTIES

1. Has the powers of a corporation.
2. Represents school system before Board of Estimate.
3. Uses, controls, and disposes of school property.
4. Enacts by-laws.
5. Establishes and conducts elementary, high, evening, vacation schools, etc.
6. Provides training schools for teachers.
7. Maintains nautical school.
8. Maintains free lectures.
9. Appoints janitors.
10. Adopts or modifies courses of study upon recommendation of Board of Superintendents.
11. Approves textbooks upon recommendation of Board of Superintendents.
12. Designates kinds and grades of licenses upon recommendation of Board of Superintendents.
13. Appoints principals and teachers from eligible lists upon nomination by Board of Superintendents.
14. Has care and management of retirement fund and establishes rules and regulations for its administration.
15. Retires teachers.

<sup>1</sup>Taken literally from or based on the Thirteenth Annual Report (1910-1911) of the Superintendent of Schools to the Board of Education of The City of New York.

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# INTRODUCTION

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### BOARD OF EDUCATION

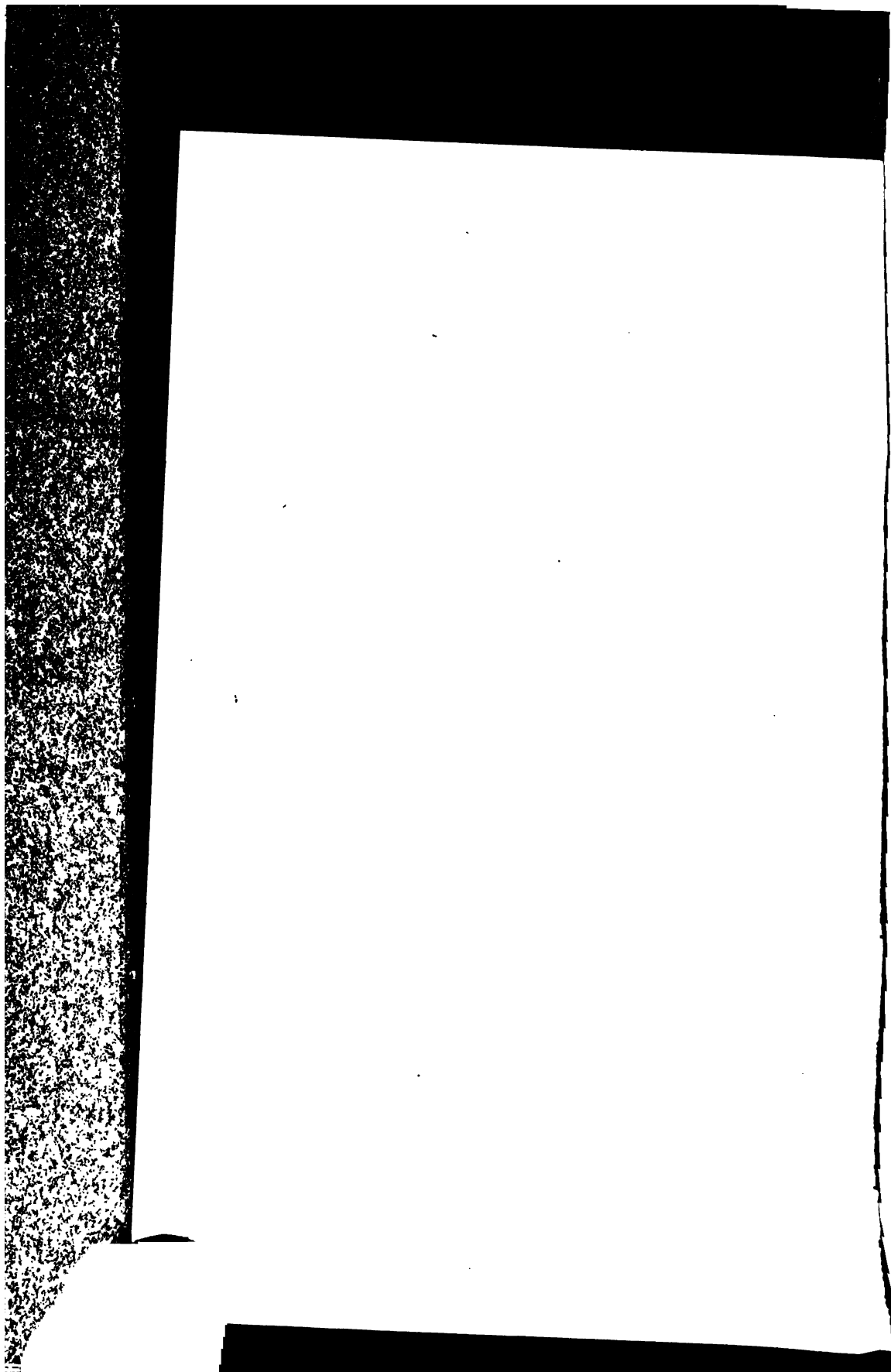
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JULY 1, 1913.

*To the Honorable, The Board of Estimate and Apportionment:*

GENTLEMEN: The Committee on School Inquiry herewith transmits the report of Prof. Paul H. Hanus of Harvard University, who served as director of the educational aspects of the Committee's investigation of the public schools of The City of New York.

Respectfully submitted,

JOHN PURROY MITCHEL,  
*President, Board of Aldermen,*

WM. A. PRENDERGAST,  
*Comptroller,*

CYRUS C. MILLER,  
*President, Borough of The Bronx,*

Committee on School Inquiry.

## VOCATIONAL SCHOOLS

	1909-10	1910-11	Increase	Per Cent.
Net enrollment.....	381	1,414	1,033	271.13
Average monthly register.....	171	647	476	278.36
Average daily attendance.....	109	521	412	377.99
Per cent. of average daily attendance on average monthly register.....	64	81	17	26.56
Number of principals.....	1	1	...	...
Number of teachers.....	4	16	12	300.00
Average number of pupils to a teacher based on the average register.....	43	40	*3	*6.98

\*Decrease.

## ELEMENTARY SCHOOLS (EXCLUDING KINDERGARTENS)

	1909-10	1910-11	Increase	Per Cent.
Net enrollment.....	650,283	666,558	16,275	2.50
Average monthly register.....	597,544	611,254	13,710	2.29
Average daily attendance.....	534,222	547,295	13,073	2.45
Per cent. of average daily attendance on average monthly register.....	89	90	1	1.12
Number of principals and heads of departments.....	853	858	5	.59
Number of teachers.....	14,095	14,334	239	1.70
Average number of pupils to a class based on the average register.....	42	42	...	....

## SCHOOL FOR THE DEAF

	1909-10	1910-11	Increase	Per Cent.
Net enrollment.....	169	197	28	16.57
Average monthly register.....	154	187	33	21.43
Average daily attendance.....	131	158	27	20.61
Per cent. of average daily attendance on average monthly register.....	85	84	*1	*1.18
Number of principals.....	1	1	..	....
Number of teachers.....	17	21	4	23.53
Average number of pupils to a teacher based on the average register.....	9	9	..	....

\*Decrease.



Above are included in the elementary school statements.

## KINDERGARTEN CLASSES

	1909-10	1910-11	Increase	Per Cent.
Net enrollment.....	42,963	45,303	2,340	5.45
Average monthly register.....	24,504	25,748	1,244	5.08
Average daily attendance.....	19,956	21,096	1,140	5.71
Per cent. of average daily attendance on average monthly register.....	81	82	1	1.23
Number of teachers.....	786	823	37	4.71
Average number of pupils to a class based on the average register.....	30	30	...	....

## SUPERINTENDENTS, DIRECTORS, ETC.

	1909-10	1910-11	Increase	Per Cent.
Number of superintendents.....	35	35	..	....
Number of directors of special branches.....	10	9	*1	*10.00
Number of assistant directors of special branches.....	3	4	1	33.33
Number of inspectors and assistant inspectors of special branches.....	8	8	..	....
Number of teachers of special branches.....	464	479	15	3.23

\*Decrease.

## EVENING HIGH SCHOOLS

	1909-10	1910-11	Increase	Per Cent.
Number of schools.....	15	18	3	20.00
Number of pupils enrolled.....	29,287	34,213	4,926	16.82
Average nightly register.....	12,673	14,554	1,881	14.84
Average nightly attendance.....	9,343	10,829	1,486	15.90
Per cent. of average attendance on average register.....	74	75	1	1.35
Number of class teachers.....	496	516	20	4.03

## EDUCATIONAL INVESTIGATION

## EVENING ELEMENTARY SCHOOLS

	1909-10	1910-11	Increase	Per Cent.
Number of schools.....	96	101	5	5.21
Number of pupils enrolled.....	80,369	93,519	13,150	16.36
Average nightly register.....	40,769	45,623	4,854	11.91
Average nightly attendance.....	27,725	30,378	2,653	9.57
Per cent. of average attendance on average register.....	68	67	*1	*1.47
Number of class teachers.....	1,422	1,360	*62	*4.36

\*Decrease.

## VACATION SCHOOLS

	1910	1911	Increase	Per Cent.
Number of schools.....	30	32	2	6.67
Aggregate attendance.....	555,098	611,043	55,945	10.08
Average daily register.....	21,434	23,302	1,868	8.72
Average daily attendance.....	18,504	20,367	1,863	10.07
Per cent. of average daily attend- ance on average daily register.....	86	87	1	1.16
Number of class teachers.....	501	574	73	14.57

## VACATION PLAYGROUNDS

	1910	1911	Increase	Per Cent.
Number of playgrounds.....	250	248	*2	*.80
Aggregate attendance.....	5,609,081	5,955,460	346,379	6.18
Average daily attendance.....	119,335	125,528	6,193	5.19
Number of teachers.....	706	838	132	18.70

\*Decrease.

## EVENING RECREATION CENTERS

	1909-10	1910-11	Increase	Per Cent.
Number of recreation centers ...	36	43	7	19.44
Aggregate attendance.....	2,165,457	2,088,415	*77,042	*3.56
Average nightly attendance.....	12,985	16,805	3,820	29.42
Number of teachers.....	161	213	52	32.30

\*Decrease.

## PUBLIC EVENING LECTURES

	1909-10	1910-11	Increase	Per Cent.
Number of centers.....	166	177	11	6.63
Number of lectures.....	5,196	5,411	215	4.14
Aggregate attendance.....	959,982	955,074	*4,908	*.51
Average nightly attendance.....	185	176	*9	*4.86

\*Decrease.

LIBRARIES  
ELEMENTARY SCHOOLS

	1909-10	1910-11	Increase	Per Cent.
Volumes in class libraries.....	462,994	472,482	9,488	2.05
Volumes circulated.....	7,494,791	7,923,054	428,263	5.71
Volumes in reference libraries...	148,448	145,832	*2,616	*1.76
Volumes circulated.....	210,685	251,971	41,286	19.60

\*Decrease.

## HIGH SCHOOLS

	1909-10	1910-11	Increase	Per Cent.
Volumes in libraries.....	75,138	79,545	4,407	5.8
Volumes issued for home use....	80,504	97,516	17,012	21.13

## THE TOTAL SUPERVISING AND TEACHING FORCE

The following table shows the total supervising and teaching force for all the schools as it was distributed between the sexes on July 31, 1911:

	Men	Women	Total
Superintendents.....	32	3	35
Directors of special branches.....	5	4	9
Assistant directors of special branches.....	2	2	4
Inspectors and assistant inspectors.....	3	5	8
High school principals.....	19	...	19
High school teachers.....	707	768	1,475
Assistants to principals not teaching, in elementary schools.....	26	405	431
Training school principals.....	2	1	3
Training school teachers.....	22	84	106
Vocational school principal.....	1	...	1
Vocational school teachers.....	8	8	16
Elementary school principals.....	216	211	427
Elementary school teachers.....	1,074	13,285	14,359
Special teachers of special branches.....	136	343	479
Kindergartners.....	...	823	823
	2,253	15,942	18,195

These figures do not include teachers in evening schools, or in recreation centers, or in vacation schools and playgrounds.

#### DIRECTORS AND ASSISTANT DIRECTORS OF SPECIAL BRANCHES

The directors of special branches are assigned as follows:

Music.—1 Director; 1 Assistant Director.

Drawing.—1 Director (elementary schools); 1 Director (high schools).

Shopwork.—1 Director (elementary schools).

Physical Training.—1 Director; 3 Assistant Directors.

Sewing.—1 Director for Manhattan, The Bronx, and Richmond.  
1 Director for Brooklyn and Queens.

Cooking.—1 Director.

Kindergarten.—1 Director.

#### TEACHERS OF SPECIAL BRANCHES

The teachers of special branches are employed to aid the regular class teachers, except in the matters of foreign languages, cooking, and shopwork; in these branches they teach the pupils directly.

In Manhattan there is one supervising officer in the elementary schools for every 18.1 teachers; in The Bronx there is one supervising officer for every 18.8 teachers; in Brooklyn there is one supervising officer for every 17.4 teachers; in Queens there is one supervising officer for every 16.3 teachers; and in Richmond there is one supervising officer for every 16.7 teachers.

#### DISTRIBUTION OF PUPILS

The table on page 17 shows the proportion of pupils in the schools, those in high schools, those in elementary schools, those in training schools, those in vocational schools, and those in kindergartens, in each of the boroughs.

The ages within which the law requires all children of sound body and mind to be in school are seven and fourteen. Seventy-three per cent. of all the pupils in the schools are within these ages.

### C. SCOPE, AIMS, ORGANIZATION, AND METHODS OF THE INQUIRY

The work in New York began on June 1, 1911. But before that time steps had been taken to secure the staff of specialists needed for the inquiry. Nominations of specialists to participate in the inquiry were made, at different times, by the specialist in charge of the work, to President Mitchel, and were approved by him; and, after December 27, 1911,

# INTRODUCTION

17

## AVERAGE MONTHLY REGISTER, SCHOOL YEAR, 1910-1911

Borough	High Schools		Elementary Schools		Training Schools		Vocational Schools		Kindergartens	
	Average Register	Per Cent. of Whole Number	Average Register	Per Cent. of Whole Number	Average Register	Per Cent. of Whole Number	Average Register	Per Cent. of Whole Number	Average Register	Per Cent. of Whole Number
Manhattan.....	13,206	4.7	259,324	91.6	829	.3	647	.2	9,209	3.2
The Bronx.....	3,247	4.5	66,739	92.5	...	..	...	..	2,181	3.0
Brooklyn.....	16,724	6.6	226,257	88.8	1,054	.4	...	..	10,699	4.2
Queens.....	4,213	7.8	46,697	86.4	228	.4	...	..	2,895	5.4
Richmond.....	812	5.8	12,237	88.0	...	..	...	..	864	6.2
	38,202	5.6	611,254	90.2	2,111	.3	647	.1	25,748	3.8

to President Miller, and were approved by him.<sup>1</sup> These specialists were assigned to their several fields of inquiry as fast as they were appointed. Each of them was also informed that, in addition to holding him responsible for results in his particular field, his work and report would be subject, so far as practicable, to the criticism of all.

At the time when correspondence with the specialists we needed began, it was found that most of them could not be secured for continuous service because they were already committed to their regular work at home for the following year, and had also made the usual additional engagements that such men in the educational field of service habitually accept.<sup>2</sup> As the inquiry must go on, it was clear that we must content ourselves with as much of their time as the men could give, with the proviso, however, that each of them should give at least six weeks of service in all.

President Mitchel had informed us that there was uncertainty about the continuance of the inquiry beyond December 31, 1911, although it was expected that the inquiry would be continued. Hence it was necessary to secure the specialists for the staff and plan their work with that in mind. It was evident then (and it has been ever since) that, because of the magnitude and complexity of the New York City school system and the time limits to which the inquiry was restricted, even if it should continue for a year, to do any satisfactory work it would be necessary to limit the general scope of the inquiry, and also to limit the work to be done within each field. And this was stated to President Mitchel.

It was evident also that a detailed plan for the inquiry could be made only after a general survey of the field had been undertaken, and after the conditions under which the work must be carried on were known. A provisional plan was, however, submitted to President Mitchel on June 14, 1911, and met with his approval. This plan was revised and submitted to him again on July 10, 1911, and again met his approval. The final form assumed by the inquiry is substantially the plan of July 10th.

Meanwhile, President Mitchel had told us that he would suggest certain investigations which he hoped we would be able to undertake without disadvantage to the broader aspects of the inquiry as planned; and the work we have undertaken in response to these suggestions was accordingly added to the plan of July 10th.

The work in one field of the inquiry as originally planned was suspended for a time (September, 1911, to January, 1912) owing to Professor Elliott's illness; and one important field had to be abandoned altogether because the specialist who was invited to report on the City

<sup>1</sup> President Miller had become Acting Chairman of the Committee on School Inquiry on account of President Mitchel's illness. President Mitchel resumed the Chairmanship in April, 1912.

<sup>2</sup> Only two members of the staff—Professor Hanus and Dr. Bachman—have been on the ground continuously since the inquiry began. Professor Ballou has been in continuous service since August 12, 1911.

Training Schools for Teachers and had signified his intention of accepting our invitation found it impossible, at a late date, to undertake this work. Efforts to find a suitable successor to him were continued until March, 1912, but without success. Our inquiry into the training schools and after-training of teachers therefore had to be abandoned.

As already stated, the inquiry began on June 1, 1911; it covers three fairly distinct periods of time.

First. From June 1st until about the middle of August. During this period a general survey of the school system was undertaken, and the plan of the inquiry was developed; work on that plan and several inquiries suggested by President Mitchel were begun.

Second. From about the middle of August till the second week of November, during which work on the budget of the Board of Education for 1912 occupied nearly the whole of our time; together with the period of uncertainty about the continuance of the inquiry, extending to the last week in December, 1911. By November the question whether the inquiry should be continued beyond December had become important. Although your Committee, under date of November 29, 1911, requested us to continue the inquiry as planned until July 1, 1912, the possibility of securing the necessary funds was not settled until December 20th, when you directed us to go on with the work. (Your letter informing us that the funds were secured did not reach us, however, until December 27th.) The staff continued its work during this period of uncertainty, but it was manifestly impossible to proceed with any extension of the scope of the inquiry beyond that already assumed prior to November, 1911. During the period of uncertainty, also, our efforts were naturally directed chiefly to bringing to as definite a conclusion as possible the partial results it had been possible to achieve. Toward the end of this period, also, President Mitchel fell ill.

Third. Under date of December 20, 1911, we were directed to proceed, and were informed that, in consequence of President Mitchel's illness, President Miller had become Acting Chairman of the Committee on School Inquiry; and the third period of the inquiry extends from that date to the present time, July, 1912. During this third period, the work as planned during the first period, modified as circumstances required, together with such work on the questions suggested by President Mitchel (referred to above) as we were able to undertake, proceeded uninterruptedly; and it is during this period of concentration on the inquiry as planned that much the greater part of the work with which this report deals was done.

#### INQUIRY INTO PROMOTION, NONPROMOTION, AND PART TIME

Our first efforts were directed to an inquiry into certain factors affecting promotions and nonpromotions in the elementary schools (including "part time"), when the inquiry began on June 1st, in accordance with

instructions from President Mitchel, transmitted through Mr. Burdette G. Lewis. The general results of this inquiry are given below, page 46 ff.; and a detailed description of the inquiry itself is given in Dr. Bachman's report, Part II of this report.

#### INQUIRIES SUGGESTED IN PRESIDENT MITCHEL'S LETTER OF JUNE 14, 1911

On June 14, 1911, a letter was received from President Mitchel in which he suggested investigations he hoped we could make in time for the budget hearings on the Board of Education's estimate for 1912. This letter also asked "whether or not the furnishing of this information will defeat plans which you have in mind for the broader inquiry."

President Mitchel's letter asked for an inquiry into the following topics:

- (a) Additional teachers needed to take care of the annual increase of pupils.
- (b) Additional teachers needed to do away with part-time classes, and concerning the alleged evil of part-time classes.
- (c) The advantages of the consolidation of classes.
- (d) The possible advantages of increasing the number of intermediate schools, and the attitude of the Board of Education toward such increase.
- (e) The method adopted by the Board in determining the number of special teachers required.
- (f) The results of departures from the estimates in the recommended budget of last year.
- (g) The influence of visiting teachers on decreasing nonpromotion.
- (h) The basis adopted by the Board of Education in determining the largest practical size of high-school classes.
- (i) What trust funds could be used to offset the estimated budget for 1911-1912.
- (k) Whether money enough is spent on attendance officers' work, and the difference of method in the work of attendance officers in the different districts.
- (l) The facility with which teachers absent themselves from school and entail a heavy bill for substitutes.

The wide range of questions in this letter necessitated careful study—especially the possibility of answering the questions in view of the plan of the inquiry already approved, the time for the inquiry, and our financial resources.

It was soon evident that to answer the first question alone would require a larger staff and cost a larger sum of money than were at our disposal.<sup>1</sup>

<sup>1</sup>We were informed by an official of the Finance Department that his Department had under consideration the cost of tabulating the data required for such a purpose as was indicated in Question 1, and that the estimated cost would be ten thousand dollars (\$10,000).



Similarly, to determine the number of special teachers needed on the basis of the actual number of teachers in the service needing the assistance of special teachers and the number of new teachers actually needing such assistance would require a large amount of tabulation of data and a correspondingly large clerical force.

Further study of President Mitchel's questions convinced us that it would be impossible to answer them by the time of the budget hearings on the Board of Education's estimates for 1912; that to answer these questions ourselves by December would probably also be impossible even if we devoted our entire time to them. We accordingly suggested to President Mitchel that he send his questions formulated somewhat differently to President Winthrop of the Board of Education; and we stated our belief that questions that could not be answered in this way could not be answered by direct investigation by our staff.

President Mitchel doubtless approved these suggestions; for he sent a letter dated July 11, 1911, to President Winthrop covering the questions referred to. This letter asked for a reply by September 1, 1911. On that date Mr. Lewis brought President Winthrop's reply to us; but without instructions as to further procedure.

President Winthrop's letter did not give definite answers to several questions, and we accordingly prepared a series of supplementary questions on President Winthrop's answers for such use as your Committee might wish to make of them. No direct use was made of these supplementary questions by your Committee, so far as we know; but some of the questions subsequently formed a part of further investigations already under way or planned for by us.

Although we could not attempt to answer the questions in President Mitchel's letter, we have worked out the method whereby the answers to several of them could be obtained—those questions, namely, relating to

Estimating the need of elementary school teachers.

Intermediate schools.

Estimating the need of high-school teachers ("The largest practical size of high-school classes").

The compulsory attendance service.

—and the results of our investigation of these questions will be found below in "The Report as a Whole"; the detailed reports on the investigations will be found in Part II of this report.

#### WORK ON THE BUDGET

In August we were told that President Mitchel, who was in Europe, would expect us to examine the budget requests of the Board of Education with a view to supplying the information required to test the validity of the Board's requests at the budget hearings in October.

A preliminary study of the budget of the previous year was made pending the receipt of the budget for 1912. The 1912 budget did not

reach our office until about the middle of September. It was manifestly impossible to attempt an adequate analysis of the entire budget of the Board of Education, or even to collect the necessary information on which such an analysis must be based. We<sup>1</sup> decided, therefore, to restrict the scope of our examination of the budget to certain items in the General Fund, and further to limit our study of those items to the increments asked for. We were aware that, even with these restrictions, complete data for our examination of the budget would not be available. We proceeded, however, as carefully as we could. We made a provisional report recommending certain reductions in the estimates of the Board of Education and certain other provisional reports; but because of our inadequate data we proceeded no further.<sup>2</sup>

<sup>1</sup> Professor Hanus and Dr. Bachman were the only members of the staff available for this work; although Dr. Burks gave some assistance apart from his report, mentioned below.

<sup>2</sup> The reductions we recommended are summarized in the following table:

**ELEMENTARY SCHOOLS: NEW TEACHERS**

Term	Number Requested	Number Recommended	Amount Requested	Amount Recommended	Reduction Recommended
Fall Term, 1911 (Schedules Nos. 6 & 9).	568	224	\$425,250.00	\$154,860.75	\$270,389.25
Spring Term, 1912 (Schedule No. 7).....	278	11	169,536.16	6,523.33	163,012.83
Fall Term, 1912 (Schedule No. 8).....	414	276	76,910.77	45,719.45	31,191.32
<b>Total</b> .....	<b>1,260</b>	<b>510</b>	<b>\$671,696.93</b>	<b>\$207,103.53</b>	<b>\$464,593.40</b>

**ATTENDANCE OFFICERS: NEW**

Schedule No. 1.....	20	0	\$18,000.00	000	\$18,000.00
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**VISITING TEACHERS: NEW**

Schedule No. 1.....	25	0	\$25,000.00	000	\$25,000.00
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**EVENING SCHOOLS: EXTENDING THE TERM**

Schedule No. 10.....	....	...	\$14,564.00	000	\$14,564.00
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Total reductions recommended..... \$522,157.40

The other reports on the budget for 1912 were: Estimated Need of Elementary School Principals; Analysis and Criticism of Method Used to Estimate the Need of Elementary School Teachers for 1912; Estimated Need of Elementary School Teachers for 1912; Estimated Need of Kindergarten Teachers for 1912; and Estimated Need of Manual Training and Cooking Equipment for 1912; and a report by Dr. Burks on the Compulsory Attendance service. These reports have been filed with the Committee on School Inquiry.

In addition to our examination of the budget we were asked to prepare for President Mitchel's use a series of questions on each item of the budget intended to bring out at the hearings the information used by the Board of Education as the basis of its estimates. These questions were prepared and have been filed with the Committee on School Inquiry.

In order to give the Board of Education and its officers an opportunity to prepare themselves to answer the questions likely to be asked at the budget hearings, we prepared a letter to be sent by President Mitchel to President Winthrop of the Board of Education, notifying him of the kind of information the Board of Estimate would require at the hearings; and this letter was sent by President Mitchel on October 2, 1911.<sup>1</sup>

Meanwhile, in July, letters asking for suggestions and comments on aspects of the school system most requiring attention had been sent to the City Superintendent of Schools, each of the eight Associate Superintendents, each of the twenty high-school principals, each of the four members of the Board of Examiners, and to a few of the school commissioners (members of the Board of Education), in order to ascertain the range and kind of thought given to the problems of the school system by those intrusted with their solution. The replies to these letters as they were received were analyzed, and a card catalog of their contents made by Mr. Abbott.<sup>2</sup>

Many of these replies contained fruitful suggestions; and some of them which lay directly in the fields of inquiry assigned to the cooperating specialists have been duly considered.

Meanwhile, also, a study of the course of study for the elementary schools and of the high schools was begun and was carried forward with interruptions until consideration of the budget, described above, commenced. Constant delay was experienced in getting material that was needed for our study of both elementary and high-school courses of study owing largely to the absence of teachers, principals, and superintendents from their schools in vacation time. Gradually, however, information was collected from a dozen cities, and this information has been used in our study of the courses of study described in this report.

Meanwhile, also, in September, letters had been sent to each member of the Board of Superintendents and Board of Examiners, and to each District Superintendent, each high-school principal, and to eighty-three elementary-school principals, asking them certain questions covering the official and voluntary reports on their work made to the Board of Superintendents or to the Board of Education, and intended especially to ascertain how much independence and initiative and how much coöperative activity there is in the supervisory and executive staff of the

<sup>1</sup> Filed with the Committee on School Inquiry.

<sup>2</sup> Mr. Allan Abbott, Head of the Department of English in the Horace Mann School, who served as Secretary to the staff from June 19th to August 12th.

school system. The replies to these letters have been studied, and appropriate use has been made of them by the specialists whose fields of inquiry they cover.

The following table gives the list of specialists engaged on the inquiry, the field of work assigned to each, together with a general statement concerning the length of his service and whether such service was continuous or otherwise. This table conforms closely to the plan of the inquiry approved on July 10, 1911:

PAUL H. HANUS, Professor of Education, Harvard University.

In charge of Educational Aspects of School Inquiry. Continuous Service.

FRANK P. BACHMAN, Assistant Superintendent of Schools, Cleveland, Ohio.

Statistical studies pertaining to the Need of Elementary School Teachers, Promotions and Part Time, Intermediate Schools. Continuous service since June 5, 1911.

EDWARD C. ELLIOTT, Professor of Education, University of Wisconsin.

Organization and methods of the Supervisory Staff, including the Board of Superintendents, District Superintendents; Directors of Special Branches; Board of Examiners. Service, at intervals; discontinued on account of illness commencing in September; resumed in January, 1912.

FRANK M. McMURRY, Professor of Elementary Education, Teachers' College, Columbia University.

Teachers and teaching in the elementary schools, together with the supervision of their schools by the principals. Also (after December, 1911) elementary school course of study. Service at intervals.

JESSE D. BURKS, Director of the Bureau of Municipal Research, Philadelphia.

Compulsory attendance service. Service at intervals.

HERMAN SCHNEIDER, Dean of the College of Engineering, University of Cincinnati.

Vocational schools. Service at intervals.

FRANK W. BALLOU, Director of School Affiliation and Assistant Professor of Education, University of Cincinnati.

High schools, organization and administration. Continuous service since August 12, 1911.

ERNEST C. MOORE, Professor of Education, Yale University.

Board of Education and Local School Boards. Service almost continuous, commencing January 17, 1912.

CALVIN O. DAVIS, Assistant Professor of Education, University of Michigan, and Inspector of High Schools.

High-school courses of study (except commercial courses). Continuous service for about seven weeks from January 2, 1912.

FRANK V. THOMPSON, Assistant Superintendent of Schools, Boston, Massachusetts.

High School of Commerce, Commercial High School, and commercial courses in high schools. Service at intervals commencing January 15, 1912.

HENRY H. GODDARD, Director Department of Psychological Research, New Jersey Training School for Feeble Minded Boys and Girls.

Ungraded classes. Service at intervals.

STUART A. COURTIS, Head of Department of Science and Mathematics, Detroit Home and Day School, Detroit.

The Courtis tests in arithmetic for about 30,000 children in the 4A-8B grades of the elementary schools and in at least one high school. Service at intervals.

The last five specialists named above were assigned to duty as soon as possible after you directed us, under date of December 20, 1911, to proceed with the inquiry. At that time also Professor Elliott was re-assigned to duty, and the field originally assigned to him was divided between him and Professor Moore; and Professor McMurry was asked to undertake a report on the elementary school course of study, as indicated in the table.

The specialist in charge of the inquiry has devoted a large share of his time, apart from planning and directing the inquiry as a whole, to the plans of the members of the staff<sup>1</sup> and to continuous and detailed supervision of their work and criticism of their reports, as the work and the reports thereon developed. For several of the reports he is equally responsible as to details of subject matter and form with the specialists who sign them.

Also, in accordance with the original plan of work, most of the reports of the specialists were discussed in staff conferences; and all of them would have been had time and circumstances that we could not control permitted, *i. e.*, had it been possible oftener to get the members of the staff together. As it was, many partial staff conferences were held, conferences of individual members of the staff with each other took place daily, and prolonged conferences of one or more members of the staff with the specialist in charge occurred almost every day.

During the progress of the inquiry we have repeatedly received oral and written suggestions and memoranda concerning the inquiry from one of the directors of the Bureau of Municipal Research. At first

<sup>1</sup>"Staff" is used to designate the specialists engaged on the educational aspects of the Inquiry.

these suggestions and memoranda were welcomed and received with interest. But it gradually became apparent that these communications, in large part, represented a spirit and methods widely divergent from our own; hence they were of diminishing interest to us; and since November, 1911, we have pursued our work without reference to them.

The aims of the inquiry are constructive throughout. We have aimed to deal judiciously with the achievements, merits, and defects of the school system. But since our chief purpose was constructive criticism we have given most attention to such defects as we have been able to point out. It will be apparent, therefore, that we have not dealt with the defects of the school system in order to give prominence to them, but in order to suggest the means of remedying or minimizing them. We have, of course, sought to ascertain the facts, so far as time and opportunity permitted, and to make such recommendations as the facts justified.

Neither the professional reader nor the lay reader needs to be told that there are very few established standards whereby the efficiency of educational activities may be measured, and that accepted methods of studying such activities are, for the most part, yet to be found. The science of education is, as yet, in its beginning. We have, however, used such standards as are available, and have employed or developed such methods of studying the problems with which we have dealt as commended themselves to our judgment. The methods we have employed are statistical, comparative, and experimental—the last only so far as such methods could be immediately applied by us (*e. g.*, the Courtis Tests in arithmetic and the Binet-Simon Tests for mentally defective children).

At the present time educational opinion rather than organized educational experience is often the only available basis for educational procedure. Consequently some of our recommendations (*e. g.*, those pertaining to courses of study in elementary schools and in high schools, the size of high schools, specialized and general high schools) necessarily rest on such opinion. Such recommendations are regarded by us as a safe basis for experimentation for progressive improvement; but we also urge, once for all, that the fruits of educational experience following the adoption of such recommendations be collected, organized, and carefully appraised, in order that established educational truths may gradually take the place of mere opinion; *i. e.*, we recommend that statistical and experimental methods of study of educational procedure and results be greatly developed and continually applied within the school system itself to confirm or refute educational opinion within the school system and in the community.

We have endeavored throughout, so far as possible, to enlist the co-operation of the supervisory officers and teachers in getting facts, and to some extent in arriving at the conclusions derived from them, and recommendations based on them. It is a pleasure to state that our endeavors in this direction, especially in getting information, met with

a hearty response on the part of the City Superintendent, several of the Associate Superintendents, several members of the Board of Examiners, most of the District Superintendents, and Directors of Special Branches, all of the High-School Principals, several active committees of High-School Teachers, and many Elementary-School Principals whose cooperation we invited. The Board of Education and its Secretary, and the responsible heads of its several bureaus, and nearly all of the Local School Boards have afforded us every facility in getting the facts we sought. We have also had valuable assistance from the Secretary of the Permanent Census Board.

During the progress of the inquiry the question whether it was possible to publish portions of the report in advance of the publication of the final report was considered more than once. We found, however, that such publication was not feasible, because (1) it was manifestly important to minimize the possibility of error in our conclusions by the opportunity to revise them up to the last moment; and, as exigency or opportunity frequently required us to turn from one piece of work before completing it to another, final revision of partially completed portions of the report was repeatedly and necessarily deferred; (2) the time that possible controversies would demand was urgently needed for the inquiry itself; and (3) most of the reports of the contributing specialists were not ready for the printer until the end of May, and some of them were not ready till the last week of June.





## THE REPORT AS A WHOLE<sup>1</sup>

PAUL H. HANUS.

The City of New York, with its great area, diversified population of about 5,000,000 people, and complex organization, naturally possesses a huge and complicated school system. Confining the enumeration of the educational aspects of the system to those only which have been dealt with, or, at least, touched in this report, there were in 1910-11, 497 elementary schools; 3 training schools for teachers;<sup>2</sup> 2 day vocational schools; 3 truant schools; 20 high schools and high school departments; together with 16 evening high schools, 2 evening trade schools, and 101 evening elementary schools. These schools and other schools and activities were under the general control of a Board of Education consisting of 46 members, and were also subject to the general oversight of 46 local school boards. The total teaching and supervising force, exclusive of teachers in evening schools, recreation centers, vacation schools, and playgrounds, numbered 2,253 men and 15,942 women, 18,195 persons in all. The average monthly register in all schools was 677,192 and the average daily attendance was 603,455. Magnitude, variety and complexity are accordingly salient and significant features of the school system; and had to be reckoned with in any inquiries, however limited, that could be undertaken.

It was not possible to give any serious study to the problems presented by the Inquiry prior to June 1st, 1911, when our work began. As already stated in the Introduction to the report, the Inquiry covers three fairly distinct periods: (1) from June to the middle of August, when we were adjusting ourselves to the local situation; (2) from the middle of August to the middle of November—the budget period, and the further period of uncertainty about the continuance of the Inquiry till about the end of December, 1911; and (3) from January 1st till July 1st, 1912, when most of the productive work of the Inquiry was done.

<sup>1</sup> This section of the report was written during December, 1912. It could not be written sooner, owing to the late date at which the first drafts of the reports of several of my associates were ready to go to the printer, and to subsequent delays in getting and revising proof. There has been no opportunity for thoroughgoing conferences with my associates concerning the subject matter and form of this section. Accordingly, although most of them have seen and approved the portions dealing with their reports, and although I have sometimes used their own phrases, they should not be held responsible for the form in which I have cast the materials which I have drawn from their reports, nor for the substance or form of some of the recommendations.  
P. H. H.

<sup>2</sup> Originally included in the plan of the Inquiry, but found to be impossible, and abandoned with regret.

Several provisional plans for the Inquiry were drawn up during the early weeks of the first period, but it was not till about July 10th that it was possible to develop the plan which we subsequently followed as closely as time and circumstances permitted. To this plan were added certain inquiries suggested or approved by your Committee, one of which—our work on the budget of 1912—lay wholly outside our own plan, and consumed more than two months of time; but because of our limited staff and the great mass of data required, but not available, ought never to have been undertaken, and was necessarily unsatisfactory to us; and will not be further considered in this account of our work.<sup>1</sup> The others were related to our own inquiries and were made an integral part of them.

The plan adopted and approved by your Committee on July 10th, 1912, was based on the following principles:

1. The scope of the Inquiry as a whole, and in its details, must be restricted to what it is reasonable to expect can be accomplished in the time and with the staff at our disposal.<sup>2</sup>

2. Within the limits thus set we should endeavor to obtain as satisfactory answers as possible to the following questions:

- a. What instruction does the public school system of New York City provide, and is this instruction commensurate with the educational needs of the City in respect to (1) scope; (2) quality; (3) adjustment to individual needs; (4) adjustment to social (including vocational) needs?

- b. (1) Do the technical administration and supervision show professional insight and helpful leadership within and without the school system? (2) Do they actively encourage and promote the professional growth and practical efficiency of the teaching force?

- c. Is the admission of competent and otherwise satisfactory new members of the teaching and supervisory staff properly safeguarded?

- d. Are the general organization and administration of the school system such as to promote the satisfactory discharge of the city's educational responsibility by the Board of Education and the local School Boards?

- e. Further, and in general: (1) Do initiative and coöperation under leadership, or do their opposites—passive conformity to instruction from above on the part of teachers, bureaucratic and chiefly authoritative control by the supervisory staff, and purely authoritative or arbitrary general direction and control by the Board of Education—prevail throughout the school system? (2) Is self-examination habitual throughout the school system, and are the results of educational experi-

<sup>1</sup> For an account of the work done on the budget, see the Introduction to the Report.

<sup>2</sup> This principle does not exclude, however, the definition or statement of problems to be solved by further investigation. Such problems are, indeed, perennial; and the report states many of them and suggests the procedure for their progressive solution.

ence so gathered and used as to become effective guides for future effort? (3) Is there satisfactory provision for disinterested and adequate appraisal of results achieved, including experimental tests, to confirm or refute educational opinion within and without the school system?

As stated in the introduction to the report, the purpose of the inquiry was constructive throughout. We have not failed to appreciate the merits of the school system, and they are many; but since our chief purpose was constructive criticism, we have devoted ourselves more particularly to such defects as we have been able to point out, and to suggestions and recommendations for removing or minimizing them.

The method of the inquiry has been statistical, inspectorial (personal inspection by members of the staff), comparative (comparisons of New York City's schools and school system with those of other cities), and experimental so far as reliable experimental or scientific methods are available in education and could be employed; and we have made much use of conferences with officials and members of the teaching and supervisory staff.

This method throughout aimed to ascertain the facts we needed for the purpose in hand, and to verify the facts and conclusions based on them so far as our time and opportunity permitted. We have been particularly careful not to make statements unsupported by facts where facts were needed; and we consistently objected, in spite of considerable pressure from without during the first months of the inquiry, to issue statements of findings, because we had not yet done all we could to assure ourselves of their validity. Moreover, we had no interest in setting forth defects in the school system until we were ready to make the constructive suggestions that we aimed at, and such suggestions (recommendations) could only be ready near or at the end of our work.

Our method also aimed at the coöperation of officers of the Board of Education and of the supervisory and teaching force in getting facts and in reaching and verifying conclusions; and, as stated in the introduction to the report, it is a pleasure to say that the attitude of the entire staff was, throughout the period of the inquiry, courteous, responsive, and helpful. We sought this coöperation not only because we needed the help of the Department of Education in getting the facts we needed, but also because we desired to interest them in our inquiries. On the basis of their coöperation in pointing out existing defects in the school system, we hoped to stimulate further investigation within the school system itself, to interest all concerned in recommendations for improvement, and so lay the foundation for a satisfactory practical result of our whole endeavor. Besides, in my opinion, any other procedure would not only be futile, but the procedure adopted was the natural procedure, in view of our judicial attitude and constructive purpose.

In accordance with the first principle formulated above, the scope and details of our investigation were restricted to the following fields:

I. Elementary Schools; II. Vocational Schools; III. High Schools; IV. The System of General Supervision and the Board of Examiners; V. The Board of Education and local School Boards.

As specialist in charge of the educational aspects of the inquiry, I assigned the investigations to be undertaken in the fields enumerated to eleven associates nominated by me and approved by the Committee on School Inquiry.<sup>1</sup> These men were drawn from five of the leading universities of the country, two of the largest school systems, two well-known schools, and the Bureau of Municipal Research in a neighboring city. Only two of these men were able to give continuous service to the inquiry, but none of them gave less than six weeks of time to it. My own work, in addition to planning and directing the inquiry as a whole, consisted in active coöperation with my associates in working out the plans of their several investigations, and in detailed and continuous supervision and criticism of their work and reports as the work went on.

### Standards in Education

There are as yet no universally accepted standards whereby the adequacy of educational aims and practices can be judged.

It is possible, however, by studying the practice of progressive school systems throughout the country to formulate the aims that determine their activities. Such formulations by different individuals will naturally differ in details; but if carefully made, they will agree in most essential features because they will represent what the American people want their schools to do. I have attempted such a formulation in the following paragraphs. It has been accepted in most particulars by my associates, and in the absence of a universally accepted standard of what instruction in public school systems should offer, it has been used, together with the conclusions reached by my associates in their study of details, to estimate the adequacy or inadequacy of New York City's educational offering, so far as that offering was studied by us.

This attempt to formulate the aims or principles underlying the contemporary provision for and tendencies in American education is as follows:

Public education is a social force—it aims at social welfare and betterment. It is also the means of individual development—the fullest development (self-realization) of which each individual is capable.

As a social force, public education aims to preserve, improve, and transmit the resources of society—to develop in each individual *general* and *specific* social efficiency. *General social efficiency* means social intelligence and the power to deal effectively with social problems. *Specific social efficiency* means vocational efficiency—efficiency in a particular calling.

As a means of individual development public education takes account of the nature of individuals and of the circumstances of their lives. It

<sup>1</sup> For the list of Associates, see the Introduction to the report.

supplies the means of promoting their normal development as socialized human beings. It aims to arouse and develop all the worthy interests and the corresponding powers of each individual, so far as his ability and stage of development permit, in order that his life as an individual may be as full and rich as possible, and that no artificial obstacles may stand in the way of his spiritual or material advancement. Hence,

1. Public education should train efficient citizens—men and women who recognize and appreciate the common interests of our democratic society and are able to promote their progressive development. These interests are spiritual (intellectual, moral, æsthetic), hygienic, economic, civic.<sup>1</sup>

2. Public education should strive gradually to emancipate each pupil from external restraint and guidance, and thus render him self-directing—intellectually, morally, and physically stable, alert, vigorous, and active. Together with the instruction public education offers, it should therefore insist throughout on discipline that is wise, kindly, and firm, including appropriate punishment when it is needed—a discipline that insists on progressive conformity of conduct to insight, including habits of steady application and reasonable achievement.

3. Public education should endeavor to prepare each pupil to make the best use of his leisure as well as of his working hours. Satisfactory diversions and good recreative habits are important for both the individual and society. Without disparaging harmless diversions and amusements, public education should therefore strive to develop an appreciation of, and a demand for, the serious pleasures our civilization affords.

4. Public education should strive to render each pupil economically intelligent and efficient. It should direct each pupil's attention to a vocation to which he may reasonably aspire; that is, every pupil should be led gradually to realize that a suitable vocation, accessible to him and adapted to him, is indispensable to a useful and happy life. As he approaches the end of his school career, whatever his age may be, he should come to see that his vocation will be not only the means of satisfying his personal wants and ambitions, but because it is the chief means of establishing significant relations between himself and his fellow men, it is also the source of such public service as he is capable of and may be called upon to render. Public education should, therefore, provide for the development of vocational purposes based on vocational enlightenment (vocational guidance); and it should offer each pupil appropriate training for the vocation of his choice.

Schools must therefore be so constituted as to provide adequately:

a. The means of appropriate, and, so far as possible, complete gen-

<sup>1</sup> They are also religious; but because experience has shown that religious interests are inseparable from ecclesiastical interests, and society has an institution for promoting both at once—the church—a democratic society like ours wisely delegates the preservation and transmission of religious interests to the church.

eral development (self-discovery, and self-realization, and preparation for general social service for every pupil); and

b. Various kinds of vocational training adapted to the needs, tastes, and future callings of all pupils who pass at once from school to their life work; and for those who wish to improve themselves after they have gone to work (preparation for specific social service, i. e., for usefulness).

They must therefore provide:

1. The elements of general culture, comprising
  - (a) A satisfactory command of the school arts—the three r's.
  - (b) An insight into, appreciation of, and power to deal with (1) the recorded ideals and experience of the race; and (2) all worthy interests of contemporary life, so far as they can be rendered interesting, intelligible, and accessible to children and youth of school age; that is to say: the school program (program of studies) must cover:
    - (a) The school arts—reading, writing, arithmetic.
    - (b) Language and literature (modern and ancient).
    - (c) History, government, and economics.
    - (d) Art (pictorial and plastic art, constructive art, and music).
    - (e) Mathematics.
    - (f) Natural science.
    - (g) Manual arts and domestic arts.
    - (h) Physical education, including physical training and athletics.
    - (i) Vocational guidance.

IN

- I. Kindergartens.
- II. Elementary schools, with differentiated upper grades, and well articulated with the
- III. High schools, having as wide a range of electives (administered under wise guidance) as possible.

2. Vocational training (training for specific social service) at the upper end of the Elementary School in industrial and commercial schools, whether called secondary schools or not.

IN

(a) Day vocational schools for normal pupils over fourteen years of age, whether they have completed an eight years' elementary school course or not, and who will not go to a high school.

(b) Day coöperative and continuation schools (vocational) for pupils fourteen to eighteen years of age who cannot afford or will not take the time to attend a day vocational school.

(c) Evening continuation schools, vocational and non-vocational, for pupils over eighteen years of age who are at work during the daytime.

(d) Vocational high schools—vocational schools of secondary grade.

- (1) High schools of commerce.
- (2) High schools of practical arts for both sexes (technical high schools).

(3) Agricultural high schools.

Or well organized separate departments of (1), (2), and (3) for vocational instruction in general high schools.

But the American people are not satisfied with schools for normal children only. They acknowledge their obligation to do all that can be done for exceptional children as well; hence they provide also schools or classes for

- a. Cripples.
- b. Anæmic and tubercular children.
- c. Incurables and truants.
- d. Blind children.
- e. Deaf children.
- f. Mentally defective children.

New York City meets the foregoing standard of educational opportunity only partially, and in some respects hardly at all.

## I. ELEMENTARY SCHOOLS

This field of the inquiry was subdivided as follows, in accordance with the second principle underlying our entire plan: (1) The Scope and Quality of the Instruction, and its adaptation to individual and social needs and the Supervision by the Principals—one specialist; (2) Ungraded Classes (for Defectives)—one specialist; (3) The Courtis Tests in Arithmetic—one specialist; four administrative problems—(4) Intermediate Schools; (5) Promotions, Non-promotions and Part Time; (6) Estimating the Need of Elementary School Teachers—one specialist; (7) The Compulsory Attendance Service—one specialist.

### (1) Scope and Quality of the Instruction and Supervision by Principals

While the city provides a comprehensive program of elementary education which might conform to the standard formulated above, the actual work of the schools, in large part, both in its spirit and in its details, cannot be commended. While there is much good to excellent teaching, and some equally good to excellent supervision by principals and district superintendents, the quality of the teaching and supervision is, in general, not good. This adverse judgment of the spirit which dominates the actual work of the schools—the spirit of formalism in subject-matter and method, and the disregard for adaptation to social and individual needs—extends also to the course of study and the syllabi; for the quality of the teaching cannot be judged apart from the course of study and the supervision by the principals and superintendents. The course of study is, indeed, fundamental, because it embodies

the aims on which the work of the schools is based; but the supervision by the principals and other supervisors is necessarily a perpetual influence in determining the quality of the teaching; and the syllabi issued by the Board of Superintendents are intended to interpret to all their subordinates the aims and spirit of the course of study, and to suggest the methods whereby these aims and this spirit may be incorporated in their work—and in all these respects, as has been said, the elementary education of the city is, in general, seriously defective.

Our judgment of the details of the course of study and syllabi and of the quality of the teaching and supervision is based on a study of the printed course of study and the syllabi, on actual inspection of the work of the teachers, principals, superintendents and other supervisors, and on conferences with them. Course of study, syllabi, and supervision were judged by their success or failure to provide adequately for the acquisition of certain fundamental habits on the part of the pupils, those habits, namely, which are of vital importance in daily living. The quality of all three depends on the extent to which they accomplish the purpose of enabling the pupils to acquire as good a command of themselves and of their material and social environment (social resources) as their stage of development requires and permits.

To this end the emphasis in the subject matter of instruction (course of study) should be on those elements of it which enable the pupils to assimilate the worthiest ideals, the real issues, and the most useful practices of contemporary life. Or, briefly, that subject matter is most valuable that enables the pupil to appreciate and to deal effectively with the resources and problems of contemporary life, so far as his stage of development permits; and the course of study and syllabi are defective because they do not provide satisfactorily for this subject matter. On the contrary, they emphasize the formal aspects of knowledge rather than its living elements.

That teaching is most effective which develops habits of initiative, self-reliance, constructive imagination, judgment, and reasoning on the part of the pupils—habits essential to efficient thought and action. The teaching in the schools is defective, in general, because it does not aim at and fails to secure these fundamental mental habits and the corresponding conduct on the part of the pupils.

Supervision by principals and superintendents is most effective when it conspicuously helps to secure the course of study and the method just described. Since neither course of study nor teaching is good, the supervision is not good; it shows, rather, the lack of educational leadership; and this judgment was further confirmed by conferences with the teachers and inspection of the work of the supervisory officers.

For the improvement of the work of the elementary schools, we suggest, first, certain minor but important changes in the course of study such as the elimination of technical grammar as a separate study;



a thoroughgoing revision of the course in nature study and natural science; the elimination of English history as a separate study, restricting it to those topics that are necessary for the proper understanding of United States history, to be taught in connection with United States history; the elimination of a considerable part of the present course in arithmetic, restricting it during the first six years to securing accuracy and reasonable facility in the fundamental operations—addition, subtraction, multiplication, and division of whole numbers and simple fractions, both common and decimal, together with percentage and its simplest applications to interest and trade discount; and the reduction during the last two years of the time devoted to arithmetic to not more than three forty-minute periods per week; and during those two years, chiefly, except as individuals may require additional instruction in the fundamentals, to applications of arithmetic in geography, history, nature study, manual training, and other subjects; and, further, an extensive rearrangement of the subject matter of the course of study to establish a fuller correlation among studies, in the interest of unification of the pupils' acquisitions; and particularly a thoroughgoing revision of the work of the seventh and eighth years.

On this last point I desire to make a recommendation with which some of my associates may differ. It is this: Whether the thoroughgoing recommendation for flexibility in the course of study recommended below is adopted or not, it seems to me important that greatly increased flexibility in subject matter and administration should characterize the instruction of the last two elementary school years, in harmony with the varying future careers of the pupils. Some of the pupils are going on to the high schools, some are going into industry or commerce or home life as soon as they are freed from school by the compulsory attendance law. Many of the pupils in these years are over age and have no interest in the usual "academic" work beyond reaching the standard that will set them free. In any case a single uniform course of study for these pupils is not satisfactory in view of their different purposes. I suggest, therefore, that in a few schools, at least, the experiment be thoroughly tried and appraised long enough to really determine its value or the reverse, of a differentiated course of study; one for pupils going on to the high schools, rich in the usual academic studies (including a modern language, if well taught); one for pupils going into industry, rich in the right kind of manual training, and in the domestic arts for girls; and a third for boys and girls going into stores or other commercial shops, rich in elementary instruction in commercial subjects. While no one of these differentiated courses should neglect the subjects emphasized by the others, the dominant subject matter should be clearly evident to parents and pupils alike. Such differentiated courses are already established in a near-by state, and are decidedly promising in ministering to social and individual needs, not only holding pupils in school, but giving them something of real value

to them while they remain. There is every reason to believe that such courses might prove to be equally advantageous in New York City. This recommendation applies with special force to the intermediate school, to be discussed later.

Over and above the foregoing suggestions for the improvement of the course of study in certain details is the following—which, however, covers those already made; namely, the adjustment of the entire course of study to individual and local needs throughout the city. The differences in respect to individual and local needs in the hundreds of elementary schools in New York City with its heterogeneous population are very great, and they are not now satisfactorily taken into the account.

A single uniform course of study prevails throughout the city. True, it is claimed by the City Superintendent that the liberty of principals to adapt and modify the course of study to local and individual needs is “practically infinite”; but justly or unjustly, that is not the view of their responsibilities held by great numbers, perhaps the majority, of the principals. They point out that they are bound by the syllabi; and that means uniformity. Conspicuous lack of adaptation of subject matter and method to social and individual needs therefore abounds, with corresponding lack of satisfactory achievement. We, accordingly, suggest that great relief and improvement would follow the gradual adoption of different courses of study and syllabi for schools in different parts of the city—these courses to be worked out by the principals and teachers, aided by the best of their superior officers; and that these courses be tried long enough to show their value or otherwise. (It is conceivable that each school in the city might advantageously have an appropriate course of study, differing, to some extent at least, from every other.) This would bring professional insight, life, and enthusiasm into the schools, where now there is passive or restive conformity to what is undoubtedly regarded justly or unjustly as a prescribed routine, with its deadening effect on pupils and teachers. The present conditions point to an enormous loss of educational opportunity, to say nothing of money. We urgently recommend that this plan be seriously considered, and, if possible, acted on without delay.

It will be urged, of course, that, because of the great number of pupils and the shifting of the school population, uniformity is necessary for satisfactory administration; but the schools exist for the children, not for the system. If the proposed plan is wise, and if it commends itself to those whose business it is to administer it, the way to carry it into effective execution, though much more difficult than the present administration of a uniform course of study, will be found. The great importance of securing suitable flexibility in elementary education, instead of what is now largely an attempt at rigid uniformity, with its deadening effect on teachers and its failure to educate the pupils (by the standards we have applied, at least) justifies the most serious study

of our recommendation, however fantastic it may seem to some persons—and, in our opinion, the adoption of it for thorough trial after such consideration. If its adoption seems to be impossible, then some other effective plan to accomplish the same end should be found without delay.

Improvements in the course of study would naturally be accompanied by corresponding improvements in such syllabi as would still be found necessary. When teachers and principals themselves make the course of study and syllabi, as they should, all but the poorest teachers are imbued with the spirit embodied in them, and their methods will be in harmony with this spirit and their conscious aims.

For the unsatisfactory supervision by the principals the principals themselves are not wholly responsible. Purely administrative duties, owing to the great size of many of the schools, leave the principals without time for supervision; little real authority is possessed by the principals in regard to the course of study or methods; a widespread tendency to regard the district superintendents rather than the principals as the actual heads of the school; the absence of authorized means of securing prompt and well-considered replies to recommendations submitted by the principals to their superior officers; the required frequency of the rating of teachers, and the method employed in rating them—all these seriously hamper or prevent able principals from giving their teachers helpful supervision. For these conditions unfavorable to satisfactory supervision the principals are responsible only in so far as they acquiesce in them. That is true also, finally, of another reason for the unsatisfactory supervision by the principals, namely, the absence of a clearly conceived theory of supervision—its aims and methods.

These conditions can be improved if initiative be encouraged among principals, and their coöperation under the leadership of their superior officers be systematically promoted. Such initiative and coöperation would undoubtedly also check the further establishment of enormous elementary schools—schools having upward of a hundred teachers—it would tend to place on the principal the authority he requires for the proper supervision as well as administration of his school; it would provide for a recognized channel of communication from the principals individually and collectively to their superior officers, and would keep this channel open and in use; it would tend to improve the basis and the method of rating teachers, and so make possible a reduction in the frequency of this rating, with an increase in its value; and it would develop a conception of really helpful supervision of inestimable value to the progressive efficiency of the schools.

Supervision by district superintendents is discussed later, in connection with the general system of supervision.

It is impossible to discuss here many details treated in the report.

But two such details, at least, must be referred to, because of their immediate vital importance.

A serious administrative problem is presented by persistently unruly children. This problem deserves careful and immediate attention because of the harmful effect of such children on the classes and schools where they are found. The character of some of the pupils in many schools necessitates a change of policy in the city in relation to corporal punishment. It is not now permitted, but is nevertheless practiced. It cannot be avoided. It is the inevitable result of persistent harassing of teachers and principals by unruly and defiant pupils. Such pupils can only be restrained by force from a downward career for themselves, and from exerting a baneful influence on the welfare of their classmates and even entire schools. It is manifestly unwise, however, to have punishment administered in violation of the regulations. Our study of the existing conditions induces us to recommend, (1) That the by-laws of the Board of Education expressly forbidding corporal punishment be rescinded; that the number of parental schools and disciplinary schools be increased; that the mode of commitment to these schools be greatly simplified; and that corporal punishment be allowed in them; (2) That in other schools when it is deemed advisable by the principal, one class or more, composed of persistently troublesome children, shall be formed, after the type of the present ungraded classes; and that in these special classes corporal punishment be allowed under certain restrictions set forth in the report. The mere knowledge on the part of unruly children that they may be subject to corporal punishment will often make such punishment unnecessary. The arrangement here recommended will, we believe, reduce the number of cases of corporal punishment to the inevitable minimum, and will greatly benefit all concerned.

Important as vocational guidance is, hardly a beginning of systematic endeavor in that direction in the hundreds of schools throughout the city has yet been made. What is most needed is organized effort toward equipping selected teachers so that they can serve as leaders in the difficult task of utilizing such resources as are now available for the actual work of vocational guidance; and in adding to those resources. It may not be out of place here to emphasize once more the fact that vocational guidance does *not* mean merely helping boys and girls to find work, but to find *the kind of work they are best fitted by nature and training to do well*. It does not mean prescribing a vocation; it *does* mean bringing to bear on the choice of a vocation organized information and organized common sense. It should therefore not only tend to bring about a better adjustment of the boy to his work, but also point the way to more education for more efficient work.

From the foregoing adverse judgment on the quality of the instruction in the elementary schools, the kindergartens are expressly excluded. The kindergartens are plainly fulfilling their purpose reasonably well.

## (2) Ungraded Classes

The magnitude and seriousness of the problem of caring for mentally defective children will be appreciated when the city realizes that the number of such children in the public schools is not less than 15,000, while there are only about 2,000 in present ungraded classes; that the presence of such children in classes for normal children seriously handicaps both teachers and pupils; that the means of discovering defective children and segregating them and caring for them, so far as they are segregated, are at present inadequate and defective; and, finally, that the danger of allowing such children to grow up at large is very great. Such persons not only become a burden to society themselves, but propagate their kind in large numbers by marriage or illegitimate unions with each other or with normal individuals.

We have not discussed the question whether these unfortunates should be discovered and cared for by some other agency than the public school system, say the Board of Health, but the question is deserving of serious consideration. The question is, of course, whether the problem is principally medical or educational. Up to the present time, the public school system has been charged with caring for defective children. The report accordingly deals with the way in which the schools are carrying this responsibility, and offers suggestions for future procedure.

Nearly all of the ungraded classes were visited. Much is being done, but much more must be done in the interest of the normal children and of society at large, as well as of the defective children themselves. The entire treatment of defective children is at present inadequate, owing to inadequacy of the means and methods of recognizing mental defectives, particularly the high-grade type; and there is great waste of time and effort in the present ungraded classes, owing to the attempt to teach defective children reading, writing, and arithmetic, which they will never learn well enough to use, instead of vocationalized manual training and other forms of industrial work; and many of the children are not getting what they might get because of lack of proper classroom equipment and materials. All this is largely due to the lack of adequate organization, administration, and supervision for the proper discovery and treatment of defective children, together with the lack of trained teachers.

We accordingly recommend a radical enlargement and extension of the work of the ungraded classes—a Superintendent of Schools and Classes for Defectives; at least four additional associate inspectors; five examiners (psychologists and physicians) to discover and classify defective children; the segregation of the ungraded classes in special schools as fast as possible; the prompt and adequate equipment of the ungraded classes with the appropriate materials for instruction; the establishment as rapidly as possible of the right kind of training schools

for teachers of defectives, the amendment of the child labor law so that defective children may go to work as soon as it is clear that they would be more profitably employed at work than in school—provided such children cannot be placed in an institution or colony for permanent segregation; a substantial increase in the bonus now paid to teachers of defectives who show growth in efficiency; and especially we recommend *a*: the appointment at once of a number of special assistants whose business it shall be to follow up the history of defective children after they have passed through the schools, in order that the facts of their lives may throw light on their satisfactory care and treatment; whether these should be educational, medical, or custodial, or all three combined; for their own welfare and the welfare of society; and *b*: adequate, i. e., greatly increased expenditures. The cost of carrying out these recommendations will be much greater than the present expenditure. But, *whatever it costs*, the city cannot safely perpetuate the present inadequate measures of discovering and caring for its mentally defective children, and run the further risk of allowing the present progressive increase of mental defectives to continue unchecked.

### (3) The Courtis Tests in Arithmetic

Education is seeking a scientific basis. We are aiming to substitute established educational facts and verified conclusions based on them for individual opinion, no matter how authoritative. The foundation of all science is accurate measurement of the facts with which it deals. It will be some time, however, before we have such a firm basis for the science of education—for educational theory and practice. Meanwhile a number of promising beginnings have been made, and some of them have passed beyond the stage of beginnings. Among these are the Courtis Tests in Arithmetic. These tests represent the most successful attempt at scientific measurement in education known to me. Moreover, they have been developed by Mr. Courtis through several years of investigation over a wide area in this country and abroad.

It seemed important that we should apply this illustration of the scientific method of investigating and appraising educational results in at least one important field of work. I therefore gladly availed myself of the opportunity to secure Mr. Courtis himself to direct the application of his tests in New York City.<sup>1</sup> I wished to show how such or similar studies should be incorporated in the regular work of the school system in the interest of the education of the children, the teachers, supervising officers, and the general public. For they point the way to real progress in education. Such studies in every field of work are imperatively needed. They would show how unsafe complacent or at least tacit acquiescence in our present generally unsatisfactory basis—mere educational authority based on general opinion and personal ex-

<sup>1</sup> Mr. Courtis received no salary. He was satisfied with his expenses.

perience—is. And they would furnish a guide to practice, the validity of which neither teacher nor layman could disregard. It is because the Courtis tests show this for fundamentals in arithmetic—one of the most important studies—and at the same time show what the present arithmetical achievement of the schools in those fundamentals is, and because they furnish important suggestions for future procedure in teaching and supervision, that we have used them.

The central idea of the Courtis tests is that *the same test* is applied *under the same conditions* in every grade; and that growth in ability in the fundamentals tested is shown in increased accuracy and speed in the work done. The tests were applied to 33,350 children—approximately one-tenth of the pupils in the grades 4A to 8B in schools selected at random, but widely distributed throughout the city. As a whole, the results show great inefficiency in both accuracy and speed in computation, and in simple reasoning; and they show, further, that children of *every level of ability* (the average score for a grade) *are found in every grade*; and that *differences between individuals greatly exceeded differences between grades*. Such results, it should be noted, are not peculiar to New York City; they have been found wherever the Courtis tests have been applied. Compared with children in other cities, New York City children are slightly better in speed, but correspondingly worse in accuracy, and very poor in reasoning.

These conditions are not due to lack of effort on the part of the teachers, but to the neglect of a basic factor in education—adaptation of the work to individual differences. We accordingly recommend that present methods be so modified as to base the work in fundamentals, at least, on the measured individual needs of the pupils; that standard tests and standard achievements be adopted to increase definiteness of aims in teaching the fundamentals of arithmetic; that investigations be undertaken to determine the effect of all the factors that determine ability, and condition mental growth; that the effectiveness of various methods of work be tested by certain scientifically controlled experiments; and, finally, that the Bureau of Investigation and Appraisal<sup>1</sup> recommended below organize and control these investigations and experiments.

#### **(4), (5), (6), (7) Certain Problems in the Administration of the Elementary Schools**

Four important problems in the administration of elementary schools were included in our investigations at the suggestion of President Mitchel, namely: The advantages or disadvantages of Intermediate Schools; Estimating the Need of Elementary School Teachers for Educational (general administrative) and for Budget Purposes; Promotions, Non-Promotions, and Part Time; and the Efficiency of the Com-

<sup>1</sup> See page 83.

pulsory Attendance Service. Our study of these problems, besides aiming to secure the information sought so far as that was possible with the time and staff at our disposal, is also intended to show how organized educational statistics may be used to promote the progressive solution of administrative problems.

#### (4) Intermediate Schools

Intermediate Schools in New York City are schools in which seventh and eighth-year pupils (grades 7A to 8B) are segregated. There are three such schools—all in Manhattan. They were organized to relieve congestion—two of them in 1905, and one in 1907; and, although they at once proved their value for this purpose, none has been organized since. Meanwhile, congestion throughout the city has greatly increased. In spite of the service rendered by the intermediate schools, their value has been seriously questioned. Accordingly, we have studied them from three points of view: Their educational efficiency as measured by their power to hold pupils in school compared with schools having all grades, and the relative progress of pupils in the two kinds of schools; the relative cost of the two kinds of schools; and the peculiar opportunities the intermediate schools offer to adapt instruction and management to the varying needs of the pupils.

In this comparative study we have used data collected from the three intermediate schools and certain neighboring or contributing schools. In the time at our disposal it was possible for us to collect and use only data pertaining to the February-June term, 1911; hence our conclusions cannot be regarded as final. Such study, however, illustrates the method which would yield approximately final conclusions if applied to the data for a number of years.

Our study of the data used leads to the following provisional conclusions: Fewer pupils leave the 6B classes in schools having only 1A to 6B grades by .43 of 1 per cent. than leave the 6B classes in schools having all grades; fewer pupils leave the seventh and eighth-year classes of intermediate schools by 1.75 per cent. than leave the seventh and eighth-year classes of schools having all grades; more seventh and eighth-year pupils are promoted in intermediate schools by 2.04 per cent. than are promoted in schools having all grades; thirteen times as many terms of work are lost by seventh and eighth-year pupils in schools having all grades as in intermediate schools. On the other hand, more 6B promoted pupils by .67 of 1 per cent. fail to enter the 7A grade of intermediate schools than when they can enter that grade in their home schools. Thus, on all the counts save the last, the intermediate schools show distinct superiority over the schools having all grades; and on this last count the difference is slight.

The difference in cost between the two kinds of schools depends almost entirely on the three following items: the number of school



rooms, the number of teachers, and the equipment and supplies needed for instruction of a given number of 7A-8B pupils. Comparing the intermediate schools with schools having all grades, employing substantially the same schools as before, in respect to these three items, we find: that 5.31 per cent. fewer classrooms; 27.31 per cent. fewer shops (or 19.53 per cent., if the shops are used also by other than 7A-8B pupils); 17.17 per cent. fewer cooking rooms (or 6.3 per cent., if the cooking rooms are used also by other than 7A-8B pupils; 18.16 per cent. fewer gymnasiums are required to instruct a given number of 7A-8B pupils in the intermediate schools than in schools having all grades. Combining these results, it appears that the intermediate schools require fewer rooms for the instruction of a given number of pupils by 8.11 per cent. or at least 6.88 per cent. Using these differences and the actual number of rooms used to instruct a given number of 7A-8B pupils in schools having all grades, it appears that, if 20,000 7A-8B pupils could be segregated in intermediate schools, the difference in cost of regular classrooms, shops, and gymnasiums would be not less than \$100,000, together with an annual difference in favor of intermediate schools of 6.88 per cent. in upkeep and operating expenses.

We find also that 5.13 per cent. fewer regular class teachers, 8.07 per cent. fewer manual training teachers, and 8.07 per cent. fewer cooking teachers—the three kinds of teachers employed—are required to instruct a given number of pupils in intermediate schools than in schools having all grades. Combining these results, we find that the intermediate schools require fewer teachers than schools having all grades by 5.36 per cent. As before, this difference represents a difference in annual cost of not less than \$35,000 in favor of intermediate schools.

It is evident that, although there would be no difference in the amount of supplies used which are directly consumed by the pupils (such as pens, paper, pencils, ink) in intermediate schools and in schools having all grades, there would be a saving in equipment of a more or less permanent sort (maps, globes, scientific apparatus, gymnasium, cooking room and shop equipment) in intermediate schools, because fewer classrooms, shops, cooking rooms, and gymnasiums are required. Data for the amount spent for this equipment were not available to us; but it is clear that the amount would be a considerable sum.

The foregoing considerations pertain only to the intermediate schools as now organized and conducted. Such schools offer, however, excellent opportunities to render a service far beyond their present usefulness. They afford, as already said, an unusually good opportunity to adapt instruction during the last two years of the elementary school to individual and social needs through differentiated courses of study. The pupils of an intermediate school have reached the age when they are passing through the stage of later childhood and early youth. The physical and mental changes of early adolescence, and the dawning interest in social responsibilities, demand much more careful considera-

tion than they usually receive. The segregation of such pupils in a separate school brings all the special problems of their education into prominence. Consequently the teachers of such schools may, under wise guidance, develop peculiar skill in dealing with them. Such problems are the appropriate differentiation of courses of study to meet individual and local needs; segregation of the sexes, with appropriate modification of teaching and management for each sex; grouping the pupils in accordance with varying abilities, health, industry, ambitions, and home conditions; articulation of the different courses of study, with high schools and with vocational schools; vocational guidance; organizations of pupils for self-government, athletics, club work, social activities; in general, problems connected with the larger freedom appropriate to the age of the pupils, through which they may exercise and develop the insight and self-direction that will make school life real—that part of their lives that makes all the rest of their lives now and later more significant and valuable.

Accordingly, we recommend that immediate studies be made of localities where conditions seem favorable to the establishment of intermediate schools, and that such schools be established where conditions are found to be favorable; that when established such schools be so planned and conducted as not only to serve their present purpose, but also to aim at the fuller realization of the educational opportunities they may afford as outlined in the report; that pains be taken to maintain cooperating relations between contributing schools and intermediate schools on the one hand, and effective articulation between intermediate schools and high schools and vocational schools on the other; that the peculiar opportunity to develop systematic vocational guidance be fully utilized; and, finally, that the Bureau of Investigation and Appraisal<sup>1</sup> be charged with the duty of making the investigations concerning the establishment of intermediate schools, and of their efficiency and economy when established.

#### (5) Promotions, Non-Promotions, and Part-Time

Prior to the commencement of our work, President Mitchel had asked Superintendent Maxwell to furnish certain data concerning promotion, non-promotion, and part-time, with a view to determining whether the alleged causes of non-promotion reported by the City Superintendent were real causes; to what extent part-time was responsible for non-promotion; and whether part-time was otherwise an evil. When our work began, the data President Mitchel had asked for were not yet collected; and we were asked to go on with the investigation. Our first task, therefore, was to plan the collecting and tabulating of the desired data covered by fourteen questions pertaining to each child in the

<sup>1</sup> See page 83.

elementary schools of the entire city.<sup>1</sup> The tables prepared by Superintendent Maxwell calling for the desired data to be supplied by the principal of each school were sent out as revised by us as soon as possible, and were returned to us, filled as requested, about July 10, 1911. Then followed the further task of tabulating this huge mass of data, which, with our clerical staff, required several months; and finally the interpretation of the data as collected, which again required several months of labor by the one associate who had been assigned to this statistical work in addition to other work. Long before this work was finished, it was clear that the data collected would not furnish conclusive answers to the questions President Mitchel had raised, and in our report we have expressly asserted this fact. Nevertheless the data collected do supply valuable information never before collected, some of which has been utilized by us in defining and suggesting other important problems. Some of this material will be considered in this summary.

It is obviously undesirable to reproduce here any of the statistical details on which our findings and recommendations are based. For such details the reader is referred to the report itself. We found that in all the boroughs the rate of promotion was lowest in the 1A grade, ranging from 75.37 to 76.97 per cent.; and highest in the 8B grade, ranging from 93.71 to 97.25 per cent. In the remaining grades the rate of promotion ranged from about 88 to about 91 per cent. The problem of increasing the rate of promotion in the 1A grade is primarily a question of getting the pupils into school at the beginning of the term and keeping them there.

In spite of the approximate uniformity in the rate of promotion throughout the city, there is evidence that, on the whole, promotions were made with discretion and not on a merely mechanical or numerical basis. Nevertheless there was a decided increase in the rate of promotion over preceding terms—amounting to 4.56 per cent. in a single year. This increase was probably due, in part, to pressure by the City Superintendent "to secure more generous promotions," although he took pains to impress on principals and teachers that pupils should not be promoted who are unfit to do the work of the next higher grade. The City Superintendent was justified in his endeavor to increase the rate of promotion because it is desirable to make the standard of promotion such that pupils in large numbers can enjoy the advantages of the upper grades. (These grades emphasize literature, history, geography, and other studies and activities pertaining to "life," while the earlier grades necessarily emphasize the school arts.) Such standards should, however, be explicitly described and authorized, not merely implicitly recognized and therefore vaguely approved.

Conditions favorable to a maximum rate of promotion have not been studied and provided for. Such conditions must be based on investiga-

<sup>1</sup> The investigation was, however, restricted by us to children in regular classes and to promotions at the end of the February-June term, 1911.

tions over a sufficient length of time and should include the best age of entrance to the elementary school; the age at which children need a régime of instruction and management different from that appropriate to the elementary school; the number of normal children entering on and completing the present course of study; the actual time required by children to complete the present course of study with the standards now approved, together with a clear and adequate statement of what these standards are; the actual length of time normal children remain in school, including their attendance on schools in other places, and the length of their attendance between the ages of six and fourteen years; what groups of children of varying abilities and needs requiring different courses of study should be formed. And we recommend that there be as many different courses in each school as there are groups of such children; that the actual total length of such courses as revealed by investigation and the standards adhered to be such that each normal child in regular attendance can complete one of these courses between the ages of six and fourteen.

As promotions were made in the February-June term of 1911, over-size classes, i. e., classes having more than 50 pupils, contributed but slightly, if at all, to non-promotion, i. e., to congestion. This statement does not mean, however, that educational opportunity and achievement were as good in classes over 50 as in classes under 50. We recommend that special investigations be made into the educational efficiency of classes of varying sizes—i. e., *how much* less efficient over-size classes are than smaller classes.

Absence is a very large factor in increasing the number of non-promotions and hence in increasing congestion. The corresponding responsibility of all concerned to get children into school and to keep them there is therefore clear.

Over-age of children, i. e., the length of time children are behind the grades they ought to be in as determined by the accepted age-grade standards, is an important factor in increasing the number of non-promotions, and hence congestion.

The presence of pupils unable to use the English language does not materially affect the rate of promotion of a class as a whole, because of the relatively small number of such pupils in a class; but the progress of such pupils is decidedly less than that of the other pupils, particularly in the 1A grade.

A conclusive answer to the question whether part-time is an evil in all grades, or only above the 1B grade, would require investigations exceeding the limits of time and means at our command. Such investigations should measure, among other things, the effect of part-time as compared with whole time on the health and physical development of the children; the comparative achievements of the children in the two kinds of classes; and should study the differences in the interests, habits, and conduct, in school and out, of the children in the two kinds of classes.

Our data enabled us to deal with only one phase of the educational aspect of the problem, namely, the rate of promotion in the two kinds of classes. We found that in the twelve grades in which there were both whole-time and part-time classes (part-time was practically confined to the grades 1A to 5B inclusive), the rate of promotion in whole-time classes was higher than in part-time classes in nine grades and lower in three (4A, 4B, and 6B). This lower rate, it should be noted, is most significant in the lower grades, because 88.84 per cent. of all part-time pupils are in the 1A to 3B grades, and it is precisely in those grades that part-time has been supposed to have least effect on the progress of the pupils. There is no reason to suppose that the lower rate of promotion in the 1A to 3B grades in part-time classes is indicative of higher standards than in the whole-time classes; on the contrary, part-time means congestion, and congestion of itself tends to forced promotions, i. e., to a higher rate than in whole-time classes. We found also that, although the rate of promotion was lower in part-time classes taken together than in whole-time classes, the *direct effect* of part-time on promotions was small, because of the relatively small number of non-promotions among the total number of part-time pupils. We could not inquire into certain possible indirect effects such as indifference to school work, bad conduct, and truancy, which deserve careful investigation. We found also that part-time was a very small factor in promoting congestion, if its influence was felt at all.

Considering the rate of promotion in the different kinds of part-time classes, we found: that the rate of promotion was higher in Ettinger part-time classes than in the others, and that, on the whole, more pupils were promoted in these part-time classes than in whole-time classes. This last fact should not be taken to mean, however, that Ettinger part-time classes are educationally superior to whole-time classes; for a higher rate of promotion is not alone sufficient evidence of such superiority.

Summarizing our findings, based on the available data—the data for the February-June term of 1911 only, we find that, considering each of the alleged causes of non-promotion separately, part-time and over-size of classes are responsible for relatively few non-promotions; that irregular attendance is a decided factor in increasing the number of non-promotions; that late entrance to school and sluggish mentality as expressed in retardation are material factors in causing non-promotion; that inability to use the English language increases decidedly the number of non-promotions in the relatively small number of pupils affected.

In view of the slightly lower rate of promotion for over-size classes, but more particularly because of the acknowledged educational disadvantages of such classes, the strong disapproval of part-time classes by the general public, and the prevailing practice in other cities, we recommend: that all classes having more than 50 pupils should be reduced to classes of 45 pupils; and that all part-time classes be eliminated. In

view of the decidedly lower rate of promotion of retarded pupils, and for pupils unable to use the English language, we recommend: that classes in which special attention shall be given to retarded pupils be provided at least for all pupils two years and more behind their grades; that the course of study be specially modified for such pupils; and that classes for the special instruction of pupils unable to use the English language be provided, at least, for all such pupils in grade 1A.

To carry these recommendations into effect would require a very large sum of money. Judging by the conditions existing in the February-June term, 1911, we estimate that not less than \$13,750,000 would be required for new buildings, together with an annual expenditure of probably \$270,000 for upkeep and maintenance, and an annual expenditure for teachers' salaries of not less than \$496,000.

Widespread dissatisfaction within and without the school system, with part-time as an expedient for relieving congestion, is, however, steadily exerting pressure on the Board of Estimate for appropriations sufficient to build the school buildings required. Although, as was said above, the time and means at our disposal could not enable us to ascertain whether part-time is an evil, we share the view widely held that every American school child is entitled to a full day's schooling, under the most favorable conditions that can be provided for his present and future welfare; and since further delay will merely make present conditions worse, we recommend that, although the cost of such schooling for the vast number of children in New York is very large, the city begin at once to appropriate the necessary funds.

One important item of information collected by us is the number of children who leave school without completing the course. We found that, during the February-June term of 1911, 30,995 pupils in regular classes left school. Of these, 18,134 were either subject to the compulsory attendance law or were under seven years of age, hence they will probably return to school; 12,861 doubtless left school permanently. These are large numbers. Moreover, there is no reason to believe that the number leaving in the term under consideration is exceptional, and the causes of pupils leaving should be thoroughly investigated. We accordingly recommend, as a preliminary step in the reduction of school losses, that the reports from the several schools on pupils leaving and the reasons therefor be collected and tabulated, term by term, for the city, so that these losses may be known and faced; and the causes therefor may be eradicated so far as they are found to lie within the schools.

**(6) Estimating for Budget Purposes the Number of Teachers Needed in Elementary Schools.<sup>1</sup>**

**(7) The Compulsory Attendance Service**

The organization and work of the compulsory attendance service have been severely criticized since 1908, when the Associate Superin-

<sup>1</sup> The report on this topic could not be ready in time to be included in this report.

tendent in charge of the service stated in his report that the "method of doing the work was grossly defective"; that "systematic and effective work is lacking"; and that "the results produced are not commensurate with the amount expended." Through the specialist who had been assigned by me to investigate and report on the compulsory attendance service, we made a preliminary report to your committee in October, 1911. The facts presented at that time, though admittedly incomplete, were important. These facts and others were from time to time submitted to the Associate Superintendent in charge of the compulsory attendance service, together with suggestions for the reorganization of the service. These facts and accompanying criticisms and constructive suggestions were utilized by the Associate Superintendent in formulating a plan of reorganization. This plan, with modifications, was accepted by the Committee on Special Schools, and later, on April 24, 1912, by the Board of Education.

Meanwhile, in his report for 1911, City Superintendent Maxwell recommended a sweeping change in the organization of the Compulsory Attendance Department, namely, that it should be removed from the special direction of the City Superintendent, that it should be placed under the general direction of the Permanent Census Board, and that it should be administered (subject to the general direction of that board) by the secretary of the Permanent Census Board. On the other hand, the reorganization adopted by the Board of Education proposed definite changes in methods of testing the efficiency of attendance officers and of inspecting their work.

Our original plan was to investigate the present organization and procedure of the compulsory attendance service, in order to ascertain where, if at all, inadequacy of results was due to organization and methods and to make suggestions for improvement. The action of the Board of Education referred to above makes the presentation of the details originally intended unnecessary, inasmuch as the proposed reorganization is an acknowledgment of defective organization and procedure. Accordingly, the purpose of such details as the report gives concerning present organization, methods, and results is primarily to support and facilitate the plan based, in part, on our facts and suggestions, and adopted by the Board of Education on April 24, 1912—the plan to which the school system is now committed.

We are in entire agreement with the proposal of the City Superintendent of Schools that the functions of the compulsory attendance service and of the Permanent Census Board be united in a single organization. We are convinced, however, that this organization should be responsible to the Board of Education and not to the Permanent Census Board—an independent organization. The investigation of causes of irregularity of attendance, delinquency, and unsatisfactory progress of school children; preventive treatment for minimizing or removing these causes; and disciplinary treatment for the application and enforcement

of remedial measures, are integral and indispensable elements of educational administration. Hence such functions should not be isolated, or removed from the control of the Board of Education—the authority responsible for educational administration as a whole.

One important aspect of a satisfactory compulsory attendance service deserves special attention. The service, at present, limits itself unduly to the performance of police functions, aiming chiefly at the immediate explanation and checking of truancy and irregularity; rather than at the *prevention* of truancy and irregularity by attempting to discover and control their causes. Such control of truancy by police methods alone is quite inadequate and often inappropriate. The harmful effect of irregularity of attendance on the education of children was pointed out above in the discussions of promotions and non-promotions. The evil effect of irregularity and truancy on character and conduct during and outside of school hours is obvious. The prevention of irregularity and truancy by striking at their causes is therefore even more important than the attempt to cure them.

We accordingly recommend a reorganization of the compulsory attendance service and an enlargement of its program so as to include preventive as well as corrective and disciplinary treatment; and accompanying this reorganization, first, a complete revision of the system of records and reports as suggested in the report, so as to provide an adequate basis, now lacking, for administrative judgment and control; and, second, a standardization of all routine functions.

To effect this reorganization and change of methods, we recommend further that an Attendance Bureau, responsible to the Board of Education, be constituted, and that this bureau have charge of all functions now discharged by the compulsory attendance service; the Permanent Census Board; Public School No. 120, Manhattan; and the corps of visiting teachers now supported by the Public Education Association, or to be appointed by the Board of Education, if any; that administrative control of this bureau be completely vested in a chief responsible directly to the Superintendent of Schools; and that a district supervisor, directly responsible to the bureau chief, be appointed for each of the twenty-three districts into which the city is now divided; that district superintendents be relieved of all responsibility for the administration of the compulsory attendance service, except the conducting of judicial hearings in cases brought before them by supervising attendance officers; and that the staff of the bureau, in view of the functions to be discharged, be organized as follows:

A Division of Enumeration and Investigation—to maintain a correctly revised census list of all children of school age, and to make preliminary investigation of all cases referred to the Attendance Bureau, and report thereon.

A Division of Prevention and Probation—to make more exhaustive investigation of cases not disposed of through the first division to ascer-



tain the causes of irregularity, and on the basis of a diagnosis of each case to suggest a plan of treatment which may require the coöperation of the parents, the teachers, and various voluntary agencies; and to act as probation officers.

A Division of Discipline and Prosecution—to deal with cases which have not yielded to the methods of the division of prevention and probation, and in which coercion may be necessary; and to prepare and prosecute all cases against parents and children for violation of compulsory attendance laws.

A Division of Correction—to maintain a day detention school in each of the twenty-three attendance districts, and the parental school or schools for the custodial care of children who cannot be satisfactorily dealt with in the day detention schools.

## II. WHAT KINDS OF VOCATIONAL (INDUSTRIAL) SCHOOLS ARE NEEDED?

While the City of New York makes comprehensive provision for general elementary education, its provision of only two elementary vocational schools—the Boys' Vocational School and the Manhattan Trade School for Girls—is so meager, in view of what is needed, as to be almost negligible. Hence the report deals only incidentally with these two schools, and concerns itself especially with the problem of what kinds of industrial schools are needed.<sup>1</sup>

The Boys' Vocational School in Manhattan is not a trade school—it does not claim to send out an artisan. It does endeavor to lay a good foundation for a real industrial apprenticeship in a commercial shop. It gives the boy some manual dexterity and industrial insight, on the basis of which he may make a wiser choice of a trade than he could otherwise; and increases his immediate earnings on going to work, and his prospects for the future. The number of pupils in average daily attendance in 1911-12 was 266, an insignificant number in view of the thousands of boys who leave the elementary schools every year, either with or without graduating, to go to work. This kind of school is good, so far as it goes. But if additional schools of this kind are established, they would serve their purpose better if the industrial scope of their work were extended, and made less intensive. Too much stress is now laid on manual skill in a particular trade or branch of a trade, to provide adequate opportunity for satisfactory vocational guidance, based on a sufficient acquaintance with industrial occupations.

The Manhattan Trade School for Girls aims to train girls so that they become skilled workwomen in a shorter time and in a larger and more intelligent way than is possible in the trades themselves. It is not

<sup>1</sup> Secondary schools for vocational education (vocational high schools) are discussed later.

a trade school. It does not train artisans. It does aim, through the variety of its occupations (and in this respect it is superior to the Boys' Vocational School), to start girls successfully in industrial life; and particularly to get them beyond the "blind alley" jobs at about \$3 a week to apprenticeships at about \$5 a week. The number of pupils in 1911 (average daily attendance) was 360—again an insignificant proportion of the thousands of children (girls) who go to work at an early age. So far as it goes, however, this school is well planned to meet the needs of those girls.

One serious difficulty in the development of the school is lack of freedom in the selection of teachers for the distinctly vocational work. Directors of vocational schools should therefore be given power to determine the fitness of such teachers in whatever ways seem best. The usual examinations will determine neither the fitness nor the unfitness of such teachers.

Both the schools are prevocational schools; they are attended by those pupils only who can afford to go to a day school after they are fourteen years old. Such schools are therefore selective in their educational influence, reaching only a limited number of those who need vocational education. For this reason, this type of school alone could never offer an adequate solution of the problem of vocational education, valuable as it is—particularly the girls' school—for those pupils whom it does reach.

We heartily indorse the City Superintendent's recommendation for the establishment of additional vocational schools. The important question is, however, What *kinds* of vocational schools? The city needs a well-founded, clearly conceived policy of industrial education. Having such a policy, schools planned to meet the city's real needs could be safely established as rapidly as possible. Then, if the efficiency of these schools is carefully studied in relation to the individuals and industries they are intended to serve, a progressively satisfactory scheme of industrial education will result. What, then, should this policy be? A satisfactory policy of industrial education must reach not only a few of that vast majority of young people who now leave school at about fourteen years of age to go to work; it must endeavor to reach them all. Hence it must not only provide prevocational education, but education during the early years of employment.

Fortunately, exposition and argument are no longer required in this country to establish the necessity of suitable training for these young people. The social conscience has been aroused to a recognition of the duty of society to its thousands of untrained workers—workers for the vast majority of whom progressive economic efficiency and corresponding satisfaction with life are impossible; and social need—the imperative need of properly trained, efficient workers in an age of industry, together with the acknowledged increasing difficulty and even impotence of industry to train its own workers—these two, the social conscience

and the social need—are rapidly bringing the American people to recognize their responsibilities to the great army of industrial workers, without whose mental and moral strength and industrial intelligence and skill social stability and progress are impossible.

As indicated above, two aspects of the problem present themselves for consideration, namely, *a.* Education prior to gainful employment; *b.* Education accompanying gainful employment.<sup>1</sup>

*a.* It has been pointed out already that prevocational schools alone could not solve the problem of vocational education because they reach only a few of those who need it. It was further noted that they do not aim to train artisans, i. e., they are not trade schools; and this last point requires further discussion.

Trades (and other occupations) are “energizing” and “enervating.” Enervating occupations are automatic or machine-feeding occupations, in which little or no demand is made on the intelligence of the worker and which afford no opportunity for mental development, and require only or chiefly a certain measure of manual dexterity or skill. This work does not promote the development of character; it is repressive, and makes no demands on self-expression. Energizing occupations, on the other hand, do require the exercise of intelligence as well as manual dexterity or skill, and hence afford an opportunity for mental and moral growth.

In modern industry energizing work is decreasing and enervating work is increasing. We are rapidly organizing the working world into a relatively small staff of mental workers directing a huge army of physical workers, and this condition of industry will continue and even tend to become more marked. The significant thing to note is that under such circumstances the minds of the majority of the population in our self-governing democracy are in danger of becoming less and less capable of carrying their full responsibilities as citizens because they become less and less capable of constructive thought or well-directed effort of any sort while engaged in earning their living.

It is clear that neither public pre-vocational schools nor public trade schools<sup>2</sup> should train for the enervating occupations with their deadening effect on mental and moral development—and, as a matter of fact, they have never been seriously considered by public school authorities. Public pre-vocational schools for the energizing occupations, as has been pointed out, cannot alone solve the problem of training artisans. Neither can trade schools, for they would be just as selective in their

<sup>1</sup> Evening schools for “energizing occupations” for persons eighteen years of age and upward are not here meant. The City has efficient schools of this sort and they should be extended. The compulsory evening schools for juvenile workers cannot be efficient; and we heartily indorse the City Superintendent’s recommendation that they be abolished.

<sup>2</sup> By “trade school” is meant a school which in its shops reproduces factory conditions as nearly as possible, and which by full-time attendance of the pupil turns out an artisan competent to enter a trade, or at most with only a very short apprenticeship.

influence as the pre-vocational schools, and hence their graduates would monopolize and possibly overstock the energizing occupations. The public schools of all kinds stand for equality of opportunity, and must endeavor to make that equality of opportunity as *accessible* as possible.

Moreover, the ability of public trade schools to turn out efficient artisans is still an open question. But even if they could do this, to be efficient and sufficient in number and variety, they would be enormously expensive. Such schools would not only entail heavy expense for their initial equipment, but they would be subject to the progressive expense of constantly replacing obsolete equipment, just as the factory has to bear that expense. Accordingly, we cannot advocate public trade schools, or pre-vocational schools alone, as a satisfactory policy of industrial education.

b. The satisfactory solution of the problem is found in education accompanying gainful employment—in the *coöperation of industry and education*. This coöperation offers two distinct solutions of our problem—coöperative or part-time vocational schools and continuation schools. Coöperative schools are based on an agreement between the school system and a group of manufacturers whereby the manufacturers give appropriate shop instruction to groups of apprentices, and the schools the accompanying related theoretical and general instruction. The apprentices receiving this instruction are subdivided so that the two divisions of a group alternate between shop work and school attendance. The apprentices receive the usual apprentice pay for their work. The schools have no practice shops, since the industries themselves provide the shop training required.

Continuation schools are based on an agreement by the employers to release their youthful employees at periods when they can best be spared for a limited time, say a half day or a day altogether per week, for appropriate instruction by the school system.

Either solution implies a recognition of the fact that neither industry alone nor the schools alone can discharge the educational responsibility society must discharge to its young workers, but that both together can and should discharge it, in the interest of industrial and social welfare. Such recognition will hardly require a propaganda, as was pointed out above. But to embody this recognition in actual practice may. Both manufacturers and teachers have regarded such plans as desirable but hopeless because each believed the other would not participate in them. That effective participation is possible, however, is proved by the fact that it is in operation and in successful operation in several cities of the country.

We accordingly recommend that a propaganda be undertaken to bring the school system and the industries together for a thorough study of their common educational problem and for coöperation in the solution of it; that the occupations into which children go as soon as the law permits them to go to work be studied in order that the proper continu-

ation school and coöperative school instruction may be wisely planned; that a comprehensive survey be made showing the number of boys and girls in different occupations, and the nature of these occupations; and that continuation schools for such boys and girls, and to a limited extent, at least, coöperative schools, too, in the energizing occupations be established as soon as possible; that, if necessary or desirable, legislation similar to the Ohio law for the compulsory education of juvenile workers be secured. This law permits, but does not require, the school authorities to establish day continuation schools, but makes attendance on them compulsory when they are established.

In this endeavor the most difficult problem of all is to find the appropriate continuation school instruction for the automatic workers—the workers in the enervating occupations—for it must counteract the influence of the work rather than supplement it. Much patient investigation and experimentation will be necessary before the right instruction is found. But the need of it is imperative, and it is daily becoming more so.

Finally, we recommend that the investigations required to carry this policy of industrial education into effect, and to judge of and maintain its efficiency, be assigned to the Bureau of Investigation and Appraisal already referred to.

### III. HIGH SCHOOLS

A study of the public high schools of the United States enables us to formulate the aim of public secondary education as follows: It should lift the general level of intelligence, character, and efficiency—general and vocational—of those who take advantage of the opportunities it offers. Unlike most secondary education abroad, secondary education in this country is not merely for the well-to-do classes, with incidental opportunities for a few of the most gifted of the less fortunate classes. Our secondary education aims to reach the “masses” as well as the “classes.” It does not recognize social segregations; and, so far as its administration is concerned, it is therefore equally accessible to all.

High school education aims to secure for each pupil an appropriate extension of his acquaintance with the resources and problems of our civilization begun in the elementary school; and at the same time to fix and strengthen his command over them, so far as his capacities and the time limits of his education permit.

To this end, education in this country is free in the high school as well as in the elementary school; and the transition from the elementary school to the high school should be as easy and natural as from grade to grade in the elementary school. Indeed, except for the grouping of pupils in separate buildings for convenience of instruction and manage-

ment, it ought to be impossible to say, in a well-organized school system, for certain courses, at least, where the elementary school ends and the high school begins.

Remembering that one fundamental object of all American education is to disseminate common interests and a good mutual understanding of them among all the people, it is important that the studies and activities of the high school should cover all the interests of our civilization so far as they can be rendered interesting, intelligible, and accessible to children and youths of high school age. In other words, the scope of high school education should be as broad as human interests.

To conserve, improve, and transmit these interests of society in the most effective way, it is important that each pupil, during the period of adolescence, should be led to self-discovery in respect to his dominant tastes and capacities. He should shape his educational career progressively in harmony with that discovery in order that his work may be most fruitful of results for his own growth in knowledge and power while in school, and subsequently; and to equip him to become a thoughtful and an active member of the society of which he is to be a part. Under other circumstances he can hope for only mediocre achievement both during his school life and thereafter. If he does achieve more it will be rather in spite of than because of his education.

The pupil's high school education therefore includes a training in choice—primarily, the choice of studies; and, to accomplish this end, it must offer a considerable range of elective studies, and insist on persistence and satisfactory achievement in all that the pupil undertakes. To prevent undue narrowness and premature specialization in the pupil's education, the public high school must insist on attention to a considerable variety of studies as well as on concentration of effort in a single field of study.

Every high school, or, in large cities, every system of high schools, must therefore so manage the pupil's work that the final result of his high school education is more comprehensive and thorough in some one field of study (not necessarily in one subject) than in others; and that, at the same time, the pupil has some acquaintance (at least a single course) in each of a considerable number of other studies, these other studies lying outside the range of the pupils' specialty.

In vocational high schools, the field of concentration should be more comprehensive than in general high schools; and all the studies must be so chosen and taught as not to impair the realization of the dominant aims of those schools.

The conception of a school study or activity implied throughout this discussion is that each study is a portion of valuable, organized, and, so far as it is contained in books, recorded human experience, arranged for purposes of assimilation by the pupil. Unless such a conception of school studies and activities underlies the work of the teachers, the pupil's work is likely to be abstract, formal, and often meaningless to

him, and hence unrelated to "life." If this conception prevails among the teachers, his high school career ought to be progressively and more comprehensively and intensively that part of the pupil's life which makes all the rest of his life significant and valuable (as was said above of his elementary school career). This conception should therefore stimulate the pupil to carry forward, for life, his own development, and his comprehension of and power to deal with the resources and the problems of our civilization; whether on leaving the secondary school he proceeds to some higher educational institution or enters, at once, on his life work.

In accordance with the principle that restricted our whole inquiry to what we could reasonably expect to accomplish, the report deals with only two comprehensive aspects of the city's provision for high school education, namely: The courses of study, general and special; and certain problems of organization and administration.

#### **Courses of Study except Commercial Courses**

The courses of study have been analyzed and compared with the courses of study in ten other large and representative cities of the United States, first, in their general features, and, second, in important details. New York City, like the other cities, provides: *a.* a general course and general high schools; *b.* special courses within the general schools and *c.* specialized schools. Through this analysis of New York City's high school offering and comparison with the offerings of other cities, and in view of the aim of all high school education as formulated, we sought an answer to this fundamental question, namely: Is the high school instruction offered by the city as broad in scope, as continuous and intensive in the several fields of study, as flexible in administration, and as readily available to all who can profit by it, as it should be to meet the individual and social needs of its great and varied population? To this question the answer must be negative, as will appear from the following considerations.

Pupils who enter the high schools may be conveniently classified in two main groups—those who have not decided on their future careers, educational or otherwise, and those who have.

The first group consists of those whose dominant interests and abilities are yet to be revealed, and who can or actually do defer their choice of further education or of a vocation to a later time. For them the general course or school should offer, among other things, the opportunity for self-discovery, training in choice of work (in school and beyond), and progressive adjustment of their school work to individual interests, capacities, ambitions, and needs.

The second group comprises a number of subdivisions—(1) those preparing for college; (2) those preparing for higher technical schools, or for positions of some responsibility in industrial establishments; (3)

those who aim at directive positions in commercial or financial houses, or, at least, at positions above mere clerkships; (4) those seeking preparation for subordinate positions—clerkships of various kinds; (5) those who wish to enter the city training schools for teachers; and (6) those who from the beginning feel that they are unable or do not expect to remain in school long enough to graduate, but seek such preparation as they can get while they remain for the subordinate positions they must take when the time comes for them to leave school. For this entire group, special courses or schools should be so broad in scope, so thorough in instruction, and so accessible that any pupil may find in one or the other of them, without undue expenditure of time and energy, the preparation he requires for as successful a future career, educational or otherwise, as his ability, industry, character, and resources permit.

The courses and schools provided by New York City do not satisfactorily meet the needs of either of these groups of high school pupils. Seventeen of the twenty high schools of the city provide the general course; but since these schools are widely scattered, and, further, since nearly every high school in Brooklyn and in Manhattan is a specialized school in one respect or more, the availability and efficacy of the general course for its purpose are greatly diminished. The special courses in general high schools are thus also widely scattered; so are the specialized schools, and these are very few in number.

We accordingly recommend that city-wide investigations be made under the direction of the Bureau of Investigation and Appraisal to determine the accessibility of present high school opportunities (similar to the investigation made several years ago for the Borough of Brooklyn, by a committee of the High School Teachers' Association); and of high school needs not now provided for; and that the different types of courses or schools be located where required, and within walking distance of the homes of the pupils, as shown by the investigation.<sup>1</sup>

Meanwhile, we recommend that the chief aim or purpose of each existing school be more clearly defined; and also that the Board of Education seriously consider paying the transportation expenses of pupils who declare their intention to remain at least a year in a high school which they wish to attend, but from which they are debarred because they cannot bear the expense of travel.

We have studied the details of New York City's high school offering as follows:

### **The General Course**

The single general high school course of study for New York City is even more incongruous than the single elementary school course of

<sup>1</sup>"To provide for its children the same high-school accommodations as are given by Minneapolis, Denver, and Kansas City, New York would need seventy-eight high schools instead of twenty." From an article on a report of the Committee of the High School Teachers' Association of New York City, in the *School Review*, Vol. XIX.



study, the unwisdom of which has already been discussed. Such a course rests too much on the discredited and unproved theory that whatever is good education for one set of pupils is good for all. Moreover, the New York City general course is especially noteworthy for its emphasis on the traditional or conventional subjects—Latin, mathematics, and (with some concessions to modern demands) modern foreign languages are required of all. The controlling aim of the city's high school education is too much that of the scholar, of the exceptional individual, or the fortunate pupil who has a long educational career ahead of him, and may enjoy not only a high school education, but higher education as well. But satisfactory public high school education in this country cannot thus limit its aim. It must be adapted as closely as possible to the individual and social needs of all high school pupils. The general course in New York City is much more rigidly administered than in nine of the other ten cities—whether we compare the total amount of prescribed work required for graduation, or the amount prescribed by years, or the amount prescribed in the various departments.

Further, we find that in respect to scope or range of subject-matter the New York City course, in certain important particulars, falls behind every other general course with which it has been compared, and is no more than abreast of the total offering in any of them. The most striking omissions are manual training courses for boys, adequate courses in domestic training and practical arts for girls, and satisfactory commercial courses for both boys and girls. Manual training of the right sort for boys, and domestic training and training in practical arts for girls, should afford the laboratory experience whereby both boys and girls attain a real appreciation of the significance of industrial activities, and a respect for work and workers; and the girls realize the significance and value of home making and home keeping as a fundamental requisite in satisfactory living; and both boys and girls, in their respective spheres, gain an incipient knowledge of and command over the materials, tools, and processes which make modern industrial life and modern home life possible. Moreover, these courses afford valuable opportunities, not otherwise obtainable, for vocational guidance. The omission of adequate provision for these kinds of training from the general course in most of the city's high schools is, therefore, a serious defect.

We accordingly recommend that as rapidly as possible manual training of the right sort be provided in the first and second years of every general course, and that one year of it be prescribed for graduation for every boy; we recommend, further, that corresponding courses in domestic subjects and in practical arts for girls be provided in the first two years, and that one year's work be prescribed for every girl. Such courses for girls should include, among other things, sewing and cooking, home nursing, domestic laundry work, chemistry of foods, and kindred subjects.

An appreciation of the significance of business activities is also im-

portant for a satisfactory understanding of modern civilization. Modern life is no less dependent on commerce than on industry and satisfactory homes. Hence we recommend also that appropriate commercial courses be included in the general high school course, properly differentiated for boys and girls, as indicated in the section of this report dealing with commercial courses.

We recommend also for every pupil in the general course, as soon as properly equipped teachers can be found to give it, a course in civics and vocational guidance. We have suggested that such a course be called Introductory Social Science, New York City. It should comprise a survey of the industrial and commercial life of the city, with special reference to types of occupations, and should deal in a non-political and concrete way with the problems of good city government.

For the extension of the scope of the general course in the older subjects, we recommend that intensified or specialized courses in English,<sup>1</sup> science, and mathematics be authorized, and that courses in fine art and specialized courses in music be offered.

An important detail is the intensiveness with which subjects are pursued, i. e., the weekly time allotment for the different subjects of study. Compared with the time allotments in the other cities, we find that, on the whole, New York City's high school offering is pursued less intensively in English, history, civics, and economics, mathematics, natural science, commercial subjects, industrial subjects for both boys and girls, and music, but more intensively in foreign languages, drawing, oral expression (so far as it goes), and physical training.

There is, at present, no basis for time allotment except the opinion of teachers and school officers; and we accordingly recommend that this matter be studied by the Bureau of Investigation and Appraisal with a view to determining the most satisfactory time allotments for each high school study.

Meanwhile, we share the opinion, widely held, that an allotment of less than four periods of recitation time per week for any study requiring preparation tends to make the work unsatisfactory. From this point of view, the time allotments for the following studies require revision: English, after the first year; mathematics in the second year; history in the second, third, and fourth years; science in courses that should include individual laboratory work; music and drawing throughout the four years; and we have made a series of recommendations covering the changes that seem to us desirable in time allotment, and certain related changes.

The foregoing recommendations concerning the extension of the scope, intensiveness in details, and better adaptation to individual and

<sup>1</sup> In the present general course, English is allotted less time than either Latin, French, or German—and that in a city in which, in 1908, more than half the high school pupils were children of foreign-born fathers. Statistics of the nationalities of the fathers of the 50,902 high school pupils in 1910 are not available, but there is no reason to believe that the proportion of foreign-born parents has diminished.

social requirements point also to the need of greater flexibility in administration. As already stated, the present general course of study is much more rigidly administered in New York City than in the other ten cities. This is true whether we consider the total amount of prescribed work (70.1 per cent. of the total number of "points") required for graduation, the amount prescribed by years (exclusive of subjects requiring no preparation—100 per cent., the first year;<sup>1</sup> 75 per cent., the second; 50 per cent., the third; and 35 per cent., the fourth); or by departments of study. As this rigidity is particularly marked the first year, it can hardly be doubted that it is one important cause of the great loss of high school pupils from the first year's class (10,129 and 12,105 in 1910 and 1911, respectively—considerably more than half the total number "discharged" in each year from all the classes. City Superintendent's Thirteenth Annual Report, pp. 105, 106).

As to what should be prescribed, in general, we offer the following considerations: In view of the ultimate aims of public high school education and the great diversity of individual and social needs, we are convinced that in general, and for New York City in particular, the English language and literature and the social sciences should hold a prominent place among the studies required of all pupils; first, in order that a satisfactory command of the English language as a means of oral and written expression may be attained by all, and the guiding and inspiring influence of English literature may be brought to bear on all; and, second, so that history, government, and economics may lead to an appreciation of the world's worthiest achievements, in government and in social interests generally, and particularly the evolution of democratic government; and of what these have cost not merely in blood and treasure, but especially in personal service. Similarly because of the fundamental importance of the natural sciences in contemporary civilization, some training in them is essential to all who aspire to be something more than subordinates. Further, because no other study affords the laboratory experience that the right kind of manual training affords for an understanding of the constructive and productive activities by which society maintains itself, and in which thousands of individuals find careers of progressive usefulness and personal satisfaction, some manual training should be accessible to and be prescribed for all boys; and similarly because commerce parallels industry in our social structure and equally offers a career of usefulness and satisfaction to thousands of individuals who choose wisely, some instruction in commerce<sup>2</sup> should be required of all boys. Again, because home-making, or at least the direction of a home, is one of the fundamental occupations of women,

<sup>1</sup> Although the printed course of study allows a choice of Latin, German, or French, the pupil *must choose* one of them. Moreover, in administration the nominal choice is actually narrower than this. In one high school, for example, no foreign language except Latin is taught during the first year.

<sup>2</sup> *Not*, the clerical arts, however. See Commercial Courses and Commercial High Schools, below.

and society needs good homes, some instruction in domestic science and practical arts for women should be accessible to and be prescribed for all girls. Health and good recreative habits are essential to all; hence physical education (including games and athletics) should be accessible to all, and some of it should be prescribed for all. Since the wide dissemination and appreciation of the serious pleasures afforded by the fine arts and music are indispensable to the progressive refinement of individuals and of society, instruction in the fine arts including music should be accessible to all, and some of it should be prescribed for all.

Accordingly, we hold that the only justifiable prescriptions for all high school pupils are: courses in English, the social sciences, natural science (including physiology and hygiene), manual training for boys, and the appropriate "practical arts" (including domestic science) for girls, physical training, and fine art (including music). Consequently we cannot approve the present requirement that every pupil who wishes to graduate from the general course in New York City must take three years of foreign language and two years of mathematics. We believe this requirement to be indefensible, and we recommend that it be abolished.

It is obviously undesirable, however, in view of the immaturity of high school pupils, to abandon them to their own devices in choosing their studies. We accordingly recommend that the principal and teachers of each high school formulate a considerable number of suggestive schedules, each incorporating from the total offering of the school the studies prescribed for all; and each in addition concentrating the pupil's work on some one of the principal departments of study—English, foreign languages; history, government and economics; mathematics; science; and dispersing his attention over all the other departments to the extent of at least one course in as many of them as is consistent with satisfactory annual achievement; and that each pupil, with the advice and consent of his parents and the principal (or teachers designated by him for the purpose), choose one of these schedules or "sub-courses"; and that this choice, once made, should not be lightly nor easily abandoned.

We recommend, further, *that a diploma—not merely a certificate—be granted to any pupil who satisfactorily completes any scheme of studies approved by the principal of the school, whether such scheme embodies all the prescriptions of the State Department of Education or not.* This last recommendation is especially important in view of the fact that pupils should be encouraged to secure the education that is best for them individually and not merely the conventional education determined by the Regents' examinations. For further important details concerning these recommendations the reader is referred to the report itself.

Finally, we recommend that the procedure and results achieved, if these recommendations are carried into effect, or the present procedure

and results, if they are not, be studied and reported on by the Bureau of Investigation and Appraisal.

### **The Special Courses and the Special Schools**

The special courses in the general high schools and the special schools themselves are obviously intended to meet the needs of the second main group of pupils with its subdivisions referred to above. The important question concerning these courses and schools is: Are they well adapted to the needs of the pupils of this group, and how accessible are they to them?

The general course provides ample opportunities, so far as its scope is concerned, for those pupils who are preparing for college, and for the City Training Schools for Teachers; hence so far as this course is accessible to them, these pupils are provided for. The criticisms and recommendations already made concerning the accessibility of these opportunities apply, however, but need not be repeated here. The following section deals with commercial courses and commercial high schools, and consideration of them will be omitted here.

There remain, then, first, the subdivision of pupils who attend the special high schools either to prepare for higher technical schools or for the minor directive positions in industrial establishments; and, second, the pupils whose stay in school is necessarily short. For both these groups the present provision is not satisfactory.

No investigation is needed to show that four manual training schools in New York City are not sufficient to meet the needs of the first group, especially since no manual training is offered in the general course in any part of the city. Hence many boys must either travel long distances, or, if they go to a high school at all, enter a school within walking distance which offers no manual training.

Accordingly, we recommend that as speedily as possible as many manual training high schools be established as the findings of the Bureau of Investigation and Appraisal may show to be needed; meanwhile, that at least one such high school be established in the Bronx and one in Richmond; and that an additional school of this sort be established in Queens. Or, if these schools cannot be speedily secured, at least that manual training courses parallel to the general courses be established in as many schools as possible in each of the five boroughs.

We recommend, further, greater intensiveness in certain studies and an extension of the scope of the instruction—both specified in the report—to bring the work into closer harmony with the dominant purposes of these special courses and schools; and that the instruction in the so-called “academic branches” in the manual training courses and schools be differentiated from the instruction in these studies in the general course, and that they be closely correlated to the practical work. At present the relation of the mathematics, science, and other studies to the

practical aims and work of the school is either not recognized, or, if recognized, not adequately provided for.

For the last group of pupils—those pupils whose stay in the high school is necessarily short—New York City does least of all. These pupils do not want and can make little use of the usual academic high school course, or the four-years' course planned for the more fortunate pupils with a longer school career in prospect; and yet such instruction is the only high school instruction available to the majority. What these pupils want is instruction that will enable them to adjust themselves quickly to the minor positions in the business and industrial world, with an equipment that will enable them to command a living wage at the start; and it should be said that such persons are needed in large numbers. In their own interest, however, as many of these pupils as possible should be brought to see the disadvantages of an education as limited as the education they aim at. We recommend, therefore, that courses broad in outline, but also intensely practical—such, for example, as the technical courses of the Washington Irving High School and certain proposed courses for the Wadleigh High School—be widely established in the general high schools and in the special schools. (The courses just referred to are the only ones in the city that meet directly the needs of the pupils under consideration.) Also, we recommend that similar courses appropriate to the needs of the boys, so far as these needs are already apparent, be provided extensively throughout the city, and that the principals of the schools be authorized to discover the real needs of both boys and girls, and to establish the special courses that are required to meet them; and as before that the Bureau of Investigation and Appraisal study and report on the results achieved.

From the foregoing it is clear that appropriate extension of the scope of the instruction, accessibility of the instruction, and flexibility in the administration of the instruction, in view of the enormous size of the city and the great diversity of its population, should receive immediate attention.

### **Commercial Courses and Commercial High Schools**

Commercial courses are offered in eleven of the general high schools, and in the two commercial high schools. In the general high schools the courses are three years long, except that one of these schools (Curtis) has a four-years' course for boys. Of the two commercial schools, the High School of Commerce (Manhattan) has a four-years' course, and the Commercial High School (Brooklyn) has both a three-years' and a four-years' course.

These courses have been analyzed in order to discover whether and to what extent they meet the need of vocational training for the pupils who attend them. In the general high schools the subject-matter of the courses is largely clerical—bookkeeping, business arithmetic, stenography, and typewriting. This subject-matter has been and evidently is

still regarded as instruction in commerce, although it is not really such instruction at all. It can only train office clerks. It gives no insight into and develops no power to deal with the data or materials of commerce—business organization, activities, problems, and opportunities. In the two commercial high schools the clerical subjects are also prominent, but commercial science, commercial foreign languages, and economic subjects are added. Clerical subjects are therefore prominent in all commercial courses in all the schools. There is also comparatively little relation of the "academic work" in these courses to their real purpose—the mathematics, modern languages, and science are those designed to meet the Regents' requirements,<sup>1</sup> which, in turn, are planned to meet the traditional academic or college entrance requirements.

Moreover, there is no satisfactory differentiation between commercial courses for boys and those for girls, especially in the general high schools. The wisdom of such differentiation is seen, however, when we study the occupations open to boys and girls. At the time of our investigation (April, 1912) the secretary of the Permanent Census Board had prepared a report on the occupations of a large number of New York City boys and girls between fourteen and eighteen years of age. Among these, 586 boys and 3,244 girls were stenographers and typewriters; 824 boys and 1,364 girls were bookkeepers. It is true, of course, that to be a good office clerk is a worthy aim, that good office clerks are in demand, and, hence, that the schools very properly offer the training that office clerks require; but such training must not be confused with training for commerce—for a career in business—as has already been pointed out.

Clerical training at best constitutes only a very small part of training for business, and is not an essential part of it. This estimate of the place and value of clerical training in commercial education is supported by evidence collected by us from business men, through the courtesy of the New York Chamber of Commerce; and similar evidence was afforded by an inquiry made in Boston, in 1906, and in Pittsburgh in 1909. Nor should the idea prevail that a start as an office clerk launches a youth on a business career. Sometimes it does, but not because he is a trained office clerk. Investigations into promotions and transfers in business houses show that employees in clerical work are not often promoted by transfer to other departments—the active departments of the business. Employees tend to remain in the departments in which they began; and the limit to advancement in the office force is soon reached.

In general, not more than about 15 per cent. of the employees of business houses in New York and Boston are found in clerical (office) positions, while from 40 per cent. to 50 per cent. of the entire force are found in the active or competitive side of the business. Further, business men do not now regard the product of the commercial course or

<sup>1</sup> With the possible exception of one course called Commercial English and Correspondence.

school as superior to the product of other courses or schools. True, when they want office clerks they may seek boys and girls who have been trained in such courses or schools; but not often when they want business apprentices. This is because the "business schools" have gained a reputation for training clerks, but not other employees.

At present, therefore, it is true that the non-commercial courses and schools are at least as important as, if not more important than, the commercial courses and schools in furnishing recruits for commercial pursuits. It is true that the boys and girls go from all these courses into commerce, but that fact does not make them commercial courses. A very large proportion of all boys and girls coming from the high schools and colleges go to work in business houses, but they are not on that account commercial schools and colleges. In fact, the effect of commercial education on business efficiency has been so slight up to the present time as to be almost negligible.

Our analysis of New York City's commercial courses and schools accordingly shows that, apart from the emphasis on clerical training, they are academic rather than vocational; and that, so far as they are vocational, as has been said, they emphasize the least important aspect of commercial training—clerical training. Further, the courses in the two commercial high schools are lacking in intensiveness—too many subjects are pursued simultaneously and with too small time allotments per week. In both these schools also the attempt is made to meet college admission requirements, and this interferes with satisfactory realization of the main purpose these schools should serve—vocational training for business. We have accordingly recommended certain changes in the courses of these schools, so as to make them conform to their real aims.

We have found also that the commercial courses and schools suffer from a scarcity of teachers having commercial experience and an active interest in commercial education. In the Commercial High School (Brooklyn) for example, aside from the teachers of the clerical arts, seventy-eight teachers came from the general lists of teachers for the non-vocational high schools. These last can hardly be expected to have the point of view of teachers in vocational high schools, nor can they be expected to develop it rapidly after they enter such schools. Meanwhile, of course, the instruction fails to accomplish its purpose because the teachers are not trained for that purpose, and not infrequently have little sympathy with it.

In view of the present condition of the city's commercial education, it is not strange that we find principals and teachers testifying to the relatively lower grade of commercial pupils in respect to mental power, social standing, personal qualities, and ambitions, as compared with other pupils, particularly in the general high schools. Naturally, the ambitious and able pupil will not take a course that does not challenge his ability nor minister to his ambition. The fault here lies with the educa-



tional authorities in failing to plan and carry out commercial courses that will appeal to the ablest and most ambitious, and to their parents as well. For the parents are ambitious, too; many of them naturally fail to see in the commercial training now offered preparation for as profitable and honorable a career in business as they can get in another course or school for a profession; and hence direct their children away from the commercial course or school to the course or school that leads to college or a profession. Teachers, too, often share this unenlightened attitude toward business as compared with a profession. It is true, of course, that as long as the commercial courses and schools do not train for business careers, all the better pupils are right in avoiding them, and the parents and teachers are right in advising such pupils to attend other courses or schools.

Meanwhile, the attitude of the business world confirms this attitude of teachers and parents. Since business men have not experienced the advantages of commercially well-trained employees, they do not demand commercial training. In general, they state frankly that they make no educational requirements of their employees, although, personal qualities and general intelligence being the same, the better educated are preferred. Yet business men demand that the schools provide the business apprentices they need, and frequently criticise the schools severely for their failure to meet this demand.

The fact is that the schools alone are unable to meet this demand. What is needed is a clear definition of the aims, scope, and methods of the training actually required for business careers as seen by business men who have seriously brought their minds to bear on this problem, and the gradual development of instruction that will provide this training by the schools. In other words, the solution of the problem of satisfactory commercial education must be sought in the coöperation of commerce and education, just as the solution of the problem of industrial education is sought in the coöperation of industry and education. Commerce, like industry, must recognize its responsibility to the thousands of young lives devoted to its service.

Accordingly we recommend that a temporary special commission be appointed by the Board of Education to consist of commercial teachers temporarily relieved of their ordinary duties, to investigate with the help of business men business conditions in relation to commercial education; and to lay the foundation for coöperative relations between commercial courses and schools and commercial houses. That New York City business men are prepared for such coöperation is shown by the action of the Chamber of Commerce in appointing a special committee on commercial education.

Meanwhile, we recommend a revision of New York City's conception of commercial education so as to secure appropriate emphasis on the larger and more important aspects of business; and that a council of chairmen of commercial departments and commercial high school

principals be constituted to study the present results of commercial education under the general direction of the Bureau of Investigation and Appraisal; and that this council shall be recognized as the official agency for studying courses and methods and to make recommendations for improvements to their official superiors. We further recommend that the sexes be segregated, whenever possible, for commercial instruction, and that the instruction be adapted to the needs of each sex; that the Regents' tests for commercial subjects and related academic subjects be abandoned in favor of objective standards drawn from the results of commercial training as shown by the careers of the pupils; that separate eligible lists for all teachers in commercial courses and schools be established; that there be a supervisor of all commercial courses and schools; and, finally, that as fast as possible coöperative and continuation courses for commercial employees be established, similar to the coöperative and continuation courses recommended above for industrial employees.

#### **Certain Problems in the Organization and Administration of the High Schools**

The high school principals are, by the by-laws of the Board of Education, the executive heads of their several schools, and are required to organize and administer them under the direction of the Board of Superintendents. The immediate administrative and supervisory control of the high school system is vested in two officials—the Associate Superintendent, who is chairman of the Committee on High Schools of the Board of Superintendents; and one of the district superintendents, who is assigned to the high schools.

This administrative and supervisory system limits the principal's activities to the details of organization, administration, and supervision within his own school. For example: the principal has no voice in the selection or appointment of teachers, he must take the candidates first on the eligible list; the amount of teaching to be done by a teacher or first assistant, after he is appointed, is determined by the standards fixed by the Board of Superintendents; the standard size of recitation sections is likewise fixed by the Board of Superintendents; the courses of study and the syllabi are determined by the Board of Superintendents, with such assistance as that board sees fit to invite, there being no recognized official channel through which principals and teachers make their views known to the Board of Superintendents; supplies and text-books are ordered by the principals from a list approved by the Board of Superintendents.

Principals may be assisted in the administration of their schools by teachers having the rank of first assistant. First assistants, besides being general administrative officers under the direction of the principals, are, wherever possible, made chairmen of departments of study, and as such are in charge of their respective departments.

Our study of high school organization and administration was necessarily limited to five related problems. The first of these concerns the size of recitation sections, and was undertaken in response to President Mitchel's question, "What is the largest practical size for classes in high schools?" His object was to secure a basis for estimating the number of teachers required. The size of sections is one of the factors that determine the number of teachers required (and vitally affects the quality of the instruction). But the amount of teaching and other work done by the two classes of teachers—first assistants (chairmen of departments), and other teachers—also determines the number of teachers required; and since these and other matters of internal economy are subject to the administrative control of the principals and the Board of Superintendents, a study of the size of sections with a view to ultimately determining the number of teachers needed must include a survey of the work of teachers; and of the control of the principals and of the Board of Superintendents over the internal organization and administration of the schools.

#### **Accordingly We Have Studied:**

The size of sections; the work of chairmen of departments; the work of other teachers; administrative control in relation to internal organization; estimating the need of high school teachers.

#### **The Size of Sections**

We have made typical studies of the size of sections for the entire city in German and in mathematics only, both because it was manifestly impossible with our limited staff to study the size of sections in all subjects, and because this study abundantly illustrates the method to be followed in such an inquiry. The departments of mathematics and German were chosen because they were found in all the high schools, and the time allotments are as nearly uniform as in any. Finally, since our data on the size of sections in mathematics point to the same conclusions as those for German, it will be sufficient to deal only with our findings for sections in German.

We find: that the actual size of sections for the city as a whole does not sufficiently approximate a standard; the smallest section consists of five pupils, the largest of sixty-five. Only 51 per cent. of the sections are within the limits of the standard fixed by the Board of Superintendents. Sixty-one and seventy-five one-hundredths per cent. of the sections in the first term conform to the standards—thirty to forty pupils; and only 29.6 per cent. of the sections in other terms conform to the standard—thirty to thirty-five pupils.

Similar conditions prevail in individual schools. We find, further, that 93.75 per cent. of the first-term sections with less than thirty pupils were avoidable through a different distribution of pupils; and 94.74 per cent. of the first term sections having more than forty pupils were

avoidable through a different distribution of pupils and the employment of more teachers. Similar but even more striking results were obtained from studying the size of sections in second to eighth terms inclusive. To show the importance and the method of such a study of the size of sections for administrative and supervisory purposes we have made a detailed study of the organization of sections, by terms, in three selected high schools.

Our principal findings as to size of sections are: that large sections are due to the present official standard size, which, we think, is too large;<sup>1</sup> the lack of necessary teachers; in a few cases, to bad distribution of pupils by principals; and that small sections are due to the inevitable small number of pupils in the upper terms of work, and in a few cases to bad distribution of pupils by the principals. And we recommend that a provisional standard size of section for all terms be adopted—to be tested in practice—and that this standard be thirty pupils; that enough teachers be employed to enable principals to maintain sections that closely approximate the standard size; and a careful study by the principals of program-making, in order that necessary over-size sections may be reduced, and unnecessary undersize sections may be avoided.

### **The Work of Chairmen of Departments**

Chairmen are not only the administrative and supervisory heads of their respective departments; they are teachers, and assistants to principals, and they are also assigned to study-hall supervision. We find that 75 per cent. of the chairmen of the departments of English, Latin, French and German, mathematics, biology, chemistry, physics, and history, in the larger high schools<sup>2</sup> are teaching more than fifteen periods per week—the maximum fixed for chairmen by the Board of Superintendents.<sup>3</sup> These chairmen have only 58.26 per cent. of the time theoretically reserved for duties other than teaching, and this proportion is reduced to 40.5 per cent. by the time required in these schools for study-hall supervision. In the smaller schools 86.9 per cent. of the chairmen are teaching more than the maximum of eighteen periods for smaller schools, and have actually only about one-third of the time set apart for other assigned duties, and 30 per cent. of them have less than one-fifth of the time. In view of the other important duties devolving on chairmen in addition to teaching, we recommend that every effort be made to conform to the standard assignment of teaching. The great size of the larger high schools entails an amount of administrative work which the principals cannot carry alone. The principals, accordingly, necessarily delegate to first assistants numerous and varied administrative duties

<sup>1</sup> There is, at present, no basis for this assertion except general educational opinion.

<sup>2</sup> Schools with more than 1,000 pupils.

<sup>3</sup> Twenty-five periods of work per week are recognized as a satisfactory assignment for high school teachers.

specified in the report. When a first assistant is also chairman of a department, it is clear that this assignment still further reduces the time of a chairman theoretically set apart for duties other than teaching.

In most of the city high schools the administrative and supervisory details devolving on the chairmen of departments are equal in amount to the corresponding responsibilities of most high school principals in other cities of the country. We agree entirely with the chairmen of departments that their most important duties are the organization and supervision of the work of their respective departments. For these duties they now have too little time. They are devoting more time to teaching than the maximum amount fixed by the Board of Superintendents, and their other assigned duties take most of the remaining time.

Our study of the administrative and other duties assigned to chairmen shows that some of them could be performed by competent clerks, while others of them could not; and we recommend that clerical and administrative functions be clearly distinguished: that clerical functions be assigned to competent clerks and not to teachers, and that administrative functions be assigned to the teaching staff, including the chairmen; and that the principal have at his disposal a sufficient amount of the time of the teaching staff for this purpose. Other recommendations concerning the work of chairmen are given in the report.

### **The Work of Other Teachers**

Our study of the amount of work of other teachers was necessarily limited to a few departments—English, German, mathematics, biology, history, but this study was comprehensive enough to cover essential and typical details. We found, among other things, that, if to teaching we add study-hall supervision, only about 2 per cent. of these teachers have less than twenty periods of assigned work, and more than 41 per cent. of them have more than twenty-five periods. Possibly some of these teachers are teaching too little, and some too much. We recommend an inquiry into this matter. In addition to teaching and study-hall supervision, more than 50 per cent. of these teachers have other assigned work—clerical and administrative. Teachers cannot be expected to do clerical work as well as clerks, nor should they be expected to do such work in addition to a full day's teaching and other work. On the other hand, clerks cannot do administrative work requiring the knowledge and experience of teachers.

We therefore recommend, as before, that clerical and administrative duties now assigned to teachers be clearly distinguished; that a sufficient number of competent clerks be furnished to each high school to do the clerical work; and that each principal have at his disposal a sufficient amount of the time of his teaching staff for administrative duties, in accordance with the estimates given in the report.

The foregoing recommendations cover immediate measures for the removal or at least the amelioration of certain obstacles to efficiency. We also recommend that this whole matter of the work of teachers and chairmen be studied further and reported on by the Bureau of Investigation and Appraisal, in order that present conditions may be fully realized, and the effect of our recommendations, if adopted, may be known. In this way a solid foundation can be laid for the progressive maintenance of satisfactory working conditions in the schools.

### **Administrative Control**

It remains to determine the responsibility and authority of the principals and of the Department of Education (Board of Education and Board of Superintendents) for the size of sections and the work of chairmen and other teachers. It has already been stated that the principal does not alone control the organization of his school. The standard size of sections and the standard amount of work to be assigned to teachers including chairmen are fixed by the Board of Superintendents; and the Department of Education, or the Board of Education, or the Board of Superintendents, is charged with fixing the program (course) of study, the size of the school, the size and number of classrooms, and the number of teachers—all of which profoundly affect the organization of the school in respect to size of section and number of teachers available.

Since the principals are directly responsible for the daily programs involving the number and size of sections and the amount of work to be assigned to teachers, we recommend that a thorough study of the making of daily programs be undertaken by the principals.

In view of the responsibilities of the Department of Education, we recommend that an investigation be undertaken to determine the effect of a number of different "courses" within a school and of elective studies on the number and size of sections and on the amount of teaching required to care for a given number of pupils; and into time allotments for different studies taking into account the necessity of adjusting these time allotments to a satisfactory daily program.

We share the practically universal opinion of high school principals that New York City high schools are in most cases so large that the principal cannot satisfactorily discharge his normal responsibilities to pupils, teachers, and parents; and that the unification of his school as to educational policy and results is very difficult, if not impossible; also that, for various reasons specified in the report, the system of high school "annexes" is unsatisfactory. And we recommend that high schools hereafter established be limited to about 1,500 pupils, and that separate high schools of different types take their places.

Since the size of sections is determined to some extent by the number and size of classrooms, we recommend that the seating capacity of

classrooms be limited to the maximum size of sections; that in new buildings, and in buildings now in use, wherever practicable, study halls seating 125 to 150 pupils be provided so that less time of teachers would be required for study-hall supervision, and regular classrooms would be released for recitation purposes; and that more classrooms (buildings) be provided.

In view of the present unsatisfactory method of increasing or decreasing the number of teachers in a department, we recommend that a reorganization blank be adopted, the nature of which is indicated in the report, and which provides the necessary data concerning the number and size of sections, and the amount of teaching done and to be done.

### **Estimating the Need of High School Teachers**

If the standard size of sections were fixed, and if the size of each section necessarily conformed closely to the standard, if classrooms were adequate in number, and were so planned as to fit the standard size of section, and if teachers had no other work to do than to teach, the problem of estimating the number of teachers needed would be simple. As we have seen, none of these conditions hold in practice, hence the problem is decidedly complex. It is clear also, from what has been said, that estimating the need of high school teachers is a very different problem from estimating the need of elementary school teachers—high school conditions and needs being very different from elementary school conditions and needs.

We find that the blank used in 1911 for estimating the need of high school teachers is unsatisfactory, in several particulars specified in the report; and, in general, because it furnishes only the most general information concerning the organization of each high school, and registers the estimate of the principal concerning his need of additional teachers, without giving the evidence on which his estimate is based. We accordingly recommend the use of a new blank, given in the report, the purpose of which is to base the estimated need of teachers on recorded facts concerning past experience, present organization, and future needs, all in view of the educational interests of the children; further, that this blank be used for a sufficient length of time to test its value, and that it be revised from time to time, as experience may determine, but always with a view to providing more satisfactorily the information needed.

Our conference with high school principals on the proposed blank showed considerable fear on their part that, notwithstanding the statement of their real needs which the blank requires, their estimates would be subject to reductions because the tendency to reduce estimates seems to be pretty well fixed in all supervisory and financial authorities. We are confident, however, that if it be appreciated by all

concerned that the estimates are as nearly accurate as the most careful grouping of facts can make them, the danger feared by the principals will be minimized.

#### IV. THE SYSTEM OF GENERAL SUPERVISION AND THE BOARD OF EXAMINERS

The schools of the city, like the schools of other cities, are, or should be, subject to four principal kinds of control—legislative, administrative, supervisory, and inspectorial. External legislative control is exercised by the state through its legislature. Administrative control should be exercised by the Board of Education and other lay bodies and officials, and also by members of the supervisory staff. So far as it is exercised by the Board of Education and other lay bodies and officials, it is non-technical, directive, and general. Supervisory control is professional or technical; it should be characterized throughout by constructive effort in relation to the aims, means, methods, and results of education including helpful service to subordinates; it should be exercised by superintendents, directors, and principals, under conditions that guarantee responsibility and freedom of action. Inspectorial control, like supervisory control, is necessarily based on technical knowledge and skill, but its aim is impersonal objective measurement of educational results. It is or should be regulative for the other forms of control. It is important to distinguish clearly between these different kinds of control in order to determine the powers and duties of the different agencies responsible for them, and their relation to each other—their independence and interdependence. The failure to do so is responsible, to a large extent, for the lack of effective correlation between these controlling agencies in New York City. Legislative control and administrative control (so far as they are exercised by the Board of Education) are discussed in the next section. We are here concerned with supervisory and inspectorial control, and administrative control so far as it belongs to the supervisory staff.

The revised charter of 1901, which went into effect so far as the school system is concerned in 1902, remains in all essential respects the source of the city's system of school control. The principle which it incorporated into the school system is *unification* through the centralization of administrative and supervisory authority in a central Board of Education, the Board of Superintendents, and the Board of Examiners. In respect to supervision, the charter evidently contemplates a series of ranking officers from the City Superintendents of Schools and the Board of Superintendents to the Associate City Superintendents as division superintendents,<sup>1</sup> to the district superintendents, to the directors of special branches, to the principals, to the teachers.

<sup>1</sup>The forty-six supervisory districts are grouped in divisions and an Associate Superintendent is assigned to such a group of districts as Division Superintendent.



We find that, under the existing organization and procedure, the schools must respond to a maximum amount of administrative control, and are influenced by a minimum amount of competent expert supervision. Centralization of authority has been effective in bringing about the greatly needed unification of the school system. But as a permanent device and alone it fails to stimulate the initiative and coöperation indispensable to effective supervisory control. At present *"there is a striking lack of consciousness within the school system of the radical difference between merely keeping the schools in operation and keeping the schools in operation so as to produce tangible results of high value."*

### The Principals

The provision for supervision within the elementary schools would be adequate, provided the supervisory staff—principals, heads of departments, and assistants not teaching—were competent and free to devote themselves chiefly to their functions as supervisory officers. It has been pointed out already that competent supervision by the principals is not now generally secured.<sup>1</sup>

The essential conditions of good supervision are not provided for by the charter and the by-laws of the Board of Education. The by-laws make the principals "the responsible administrative heads" of their schools; although under certain of the by-laws they are potentially the supervisory heads of their schools. Practically, however, all of the constructive features of their work are under the immediate control of superior supervisory officers, and the greater part of their time and energy is consumed by clerical and administrative duties. They cannot effectively perform their duties as supervisors as long as this is true. Competent supervision by the principals requires, first of all, a differentiation of their present duties so that they will be relieved of the burden of their clerical duties, and actively encouraged to subordinate their administrative duties to their supervisory functions. Incidentally, it should be noted that long service—and that in New York City—rather than potential supervisory capacity is given undue weight in determining the eligibility and appointment of principals. Such appointments conventionalize the work of the principals in accordance with New York educational procedure, and the city fails to profit by the infusion of the best professional ideals and practices of other communities.

At present there are two kinds of principals in the service: first, those who are competent to act as efficient supervisors and who, even under existing conditions, make a conscious effort to subordinate their other duties to helpful supervision; and, second, those who are content to limit themselves to mere routine. Good supervision by the principals will not prevail until there is a decided increase in the first kind of principals; and until the superior educational authorities more generally

<sup>1</sup> See p. 36.

secure and retain in office such principals only, and give them larger professional freedom in the conduct of their schools.

### **The District Superintendents**

There are twenty-six district superintendents. More than half of them in 1911 are those who automatically became supervisory officers by the provisions of the revised charter. Twenty-three of them are assigned to the forty-six supervisory districts—two districts to each superintendent—into which the city is divided; one to high schools; one to evening schools; and one to vacation schools, recreation centers, and playgrounds; and each of them is a member of the local school boards for his districts.

According to the general plan of organization, the district superintendents were to be supervisory officers of great importance, and they were to be the connecting link between the City Superintendent and Board of Superintendents and the principals, teachers, and the people. Each district superintendent was to be "absolutely responsible for the scholastic welfare of each school in his territory."

But we find that this theory has not been realized in practice, owing to the great size of most of the supervisory districts, which makes effective supervision by the district superintendent impossible; to the absence of high standards of qualifications and service for the selection and retention in office of district superintendents; to devotion on their own part chiefly to routine administrative duties, partly from necessity, and partly from choice; and to the absence of any clearly defined and officially recognized opportunity to participate in the initiation and development of educational policies.

As in the case of the principals, there are district superintendents who, in spite of these obstacles to their efficiency, endeavor to live up to the conception of their office contemplated by the plan of organization; but, in general, it must be said that the usefulness of the district superintendents, like that of the principals, has not been fully realized. And it will not be realized until many of their supervisory functions are transferred to the principals; until the existing method of choosing district superintendents does not confine their selection too narrowly to those whose training and experience have been limited to New York City; until a definite and high standard of selection of district superintendents and for their retention in office is adopted; and until the relation between the district superintendents and their superior officers is amended so that initiative and responsibility in matters of fundamental educational importance are officially provided for and actively encouraged.

### **Directors and Assistant Directors of Special Branches**

We could not make the necessary studies to pass judgment on the supervision and the results achieved by the directors and assistant directors of special branches. The evidence we have collected, however, justifies the assertion that, except for the kindergarten, the number of directors and assistant directors is sufficient to secure proper supervision of the special branches; that the responsibility of the directors for the scope and methods of their several subjects should be recognized, and the relation of the directors to the principals should be more clearly defined; that special teachers in certain of the special branches should be unnecessary; and that to promote the further development of the kindergarten<sup>1</sup> adequate supervision should be provided for by the appointment of additional assistant directors, and by making elementary school principals responsible for the supervision of the kindergartens to the same degree as for the other classes.

### **The City Superintendent and the Board of Superintendents**

The City Superintendent of Schools is, in accordance with the charter and the general state school laws, the chief educational officer of the city. Through him the educational policies approved by the Board of Education are embodied in the practice of the schools. He is to be the unifying influence through whom the various parts of the educational organization are to work together effectively for the realization of the purposes for which the schools exist.

While the enumeration given in the charter fairly represents the scope of the powers and duties of the City Superintendent of Schools, it does not represent the extent and significance of his influence. Whatever powers and duties statutes and regulations may confer on him, and also whatever limitations they may impose, his real power and influence will be determined by his wisdom, tact, and force of character.

The present City Superintendent is a man of commanding personality, of clear vision, of great industry, and of unswerving devotion to the educational interests of the city. His influence is correspondingly great. The City of New York owes to him more than to any other person or group of persons the educational progress its schools have made since the consolidation, and this progress, in spite of the defects we have pointed out, is very great. Without him it is difficult to see how such progress could have been made.

By virtue of his office with its comprehensive and varied responsibilities, it is natural that criticism of the school system, as a whole, or in details, should be directed against the City Superintendent and the two boards of which he is chairman—the Board of Superintendents and

<sup>1</sup> The kindergarten is not, of course, a "special branch"; but from the standpoint of supervisory policy it is included here, for convenience.

the Board of Examiners. And, in fact, such criticism, whether just or unjust, whether from within the school system or from without, is insistent and persistent. The criticisms brought to our attention not infrequently exhibited strong personal feeling, even animosity; and were important for us only when they concerned real defects in the organization of the supervisory system and the efficiency of the staff. Such criticisms from without the school systems were, on the whole, similar to those from within, and need not be separately considered.

Some of the criticisms were really complaints. They came from dissatisfied individuals within the school system who charged the City Superintendent with unfair discrimination against themselves or others in the matter of appointments, transfers, or promotions. It is only fair to say that, so far as most of the individuals were concerned who brought such criticisms to our office, only one conclusion is possible, namely, that the City Superintendent was justified in his discrimination against such individuals; and the city is to be congratulated on having a superintendent who unhesitatingly incurs the antagonism of such persons because he defeats their endeavor to secure appointments or promotions at the expense of the city's educational interests.

On the other hand, some of the criticisms were of another sort, and came from a very different class of individuals from those just referred to. They were intelligent lay and professional criticisms concerning defects in administration, or supervision, or both; more or less impersonal in their character, and hence aimed not only at the Superintendent and the supervisory staff, but also at the system of supervision in which they were all involved. It goes without saying that the most useful criticism of all is of this sort from within the school system—criticism based on the information and experience of the more intelligent, disinterested, and judicially minded members of the teaching and supervisory staff. Many such persons—teachers, principals, and superintendents—were willing individually to offer unbiased and well-supported evidence concerning the methods and effectiveness of the present supervisory system, from the City Superintendent's office down. Unfortunately, however, they were in nearly all cases expressly unwilling to be known as the individuals who gave the information and made the criticisms referred to. They almost invariably alleged that to be known would endanger their professional standing and advancement.

This attitude may be wholly groundless, but it is widespread. From our point of view, whether founded or unfounded, it indicates a serious obstruction to the professional growth and efficiency of all concerned. Such an attitude paralyzes coöperative effort in the teaching and supervisory force; and *coöperation under leadership is essential to good supervision*. Leadership there is—the City Superintendent is an unquestioned leader in every detail of the vast interests over which he presides—but coöperation, especially collective coöperation, is not invited or encouraged in such a way as to secure the free and fearless discus-

sion of mutual professional interests in which individual responsibility for views expressed and measures advocated are willingly assumed. How to secure such coöperation is one of the most important problems which the City Superintendent faces, and with which we have to deal. At present competent criticism is either intentionally or unintentionally discouraged; and unintelligent and carping criticism is allowed to undermine professional interest and enthusiasm within the school system, and public confidence without. Our proposal for a Supervisory Council offered below is intended to suggest a way out of the present untoward situation.

The chief difficulty seems to be due to the failure to distinguish between administrative control and supervisory control. So far as the City Superintendent is an administrative officer, his powers should be broad and direct. In several respects his authority should be enlarged; and this is particularly true in respect to many activities now under the control of the Board of Superintendents. As a supervisory officer he should be the executive officer and agent of the Board of Education and of the supervisory and teaching staff.

But the scope and method of his work as a supervisory officer need to be studied far more thoroughly than was possible within the time and with the resources at our disposal. Consequently we recommend that the Bureau of Investigation and Appraisal make such a study, with a view to defining the supervisory functions of the City Superintendent, so as to secure for the schools the leadership of the Superintendent in relation to the supervisory staff, while broadening and strengthening his functions as an administrative officer; and that meanwhile immediate steps be taken for the establishment of a Supervisory Council through which the necessary coöperation of teachers, principals, and other supervisory officers with the Superintendent's office may be officially provided for. Both these recommendations are considered in some detail in the report, and they are referred to again below.

### **The Board of Superintendents**

The Board of Superintendents consists of the eight Associate Superintendents and the City Superintendent, who is chairman of the board. The Revised Charter places the initiative in all educational matters in the hands of the Board of Superintendents. We find that the Board of Superintendents has become bureaucratic, and hence non-progressive. When it was first constituted, it may have been the best instrumentality available to bring about homogeneity and coherence—unity of aims and effort—within the school system. But it does not now represent either as to constitution, organization, or function a really serviceable agency for the initiation or development of educational policies; or for professional growth on the part of supervisors, principals, or teachers.

The assignment of the associate superintendents as division superin-

tendents to groups of districts has made the district superintendents directly responsible to an associate superintendent, who is, in turn, responsible for the educational welfare of his section of the city. This assignment of the associate superintendents was intended to secure direct representation in the Board of Superintendents for the schools of each division. This intention has not been realized, however, because the routine administrative duties of the associate superintendents as members of the Board of Superintendents prevent them from being real supervisory officers for their divisions.

At present the Board of Superintendents attempts to exercise the three forms of control—administrative, supervisory, and inspectorial. In small school systems these forms of control are not independent; but the magnitude and complexity of the school system of New York City necessitate specialization in order to secure efficient service.

For the exercise of administrative control the Board of Superintendents is unnecessarily complicated in organization and methods of procedure. The administrative and executive functions of the board as enumerated by the charter and in the by-laws of the Board of Education could be more promptly, economically, and effectively discharged under the direction of a single officer. Some of the principal powers of the board as enumerated in the by-laws properly fall within the jurisdiction of the City Superintendent; some of them should belong to a representative body of supervisors and teachers (one item cannot literally be carried out by a board); and one important item raises the issue as to whether district superintendents and directors should not be nominated from an eligible list as are teachers and principals.

As supervisory officers the members of the Board of Superintendents are too far removed from the actual conditions confronting teachers, schools, and neighborhoods to render the kinds of service most needed.

For inspectorial control, i. e., for the proper inspection and appraisal of the work of the schools, training and capacity radically different from those of administrative officers are required; and the work of the Board of Superintendents is at present almost wholly devoted to matters of administrative routine.

Accordingly, we recommend that steps be taken to secure the necessary legislation to abolish the Board of Superintendents and the position of Associate City Superintendent; and that meanwhile a study be made by the Bureau of Investigation and Appraisal of the powers and duties now belonging to the City Superintendent, the Board of Superintendents, and the Associate City Superintendents, with a view to securing a more economical and efficient distribution of the necessary administrative powers among the City Superintendent, the proposed Supervisory Council, the District Superintendents, and the Principals.

Further, because at present the extent to which the participation of

members of the teaching and supervisory staff in the making of educational policies is wholly within the personal choice of the City Superintendent or the Board of Superintendents, and real progress within the school system demands that such participation be officially, that is, legally provided for, we recommend that steps be taken to establish a Supervisory Council. This council should consist of the City Superintendent, all the district superintendents, and a number of selected directors, principals of elementary schools, principals of high schools, the principals of the training schools, and representatives of the teaching staff in the different types and grades of schools; and that this Supervisory Council possess general powers of initiation and direction with respect to programs of study and all other matters relating to the aims, means, and methods of instruction.

Finally, because the fundamental importance of the inspectorial form of control has been recognized only to a very limited extent—the school system at present suffers from a lack of definite and detailed knowledge of its own working and its own cost; because even where recognized officials responsible for administrative or supervisory duty now appraise their own performances; because investigations to ascertain the facts needed for reaching satisfactory conclusions concerning educational results, and the confirmation or refutation of educational opinion within and without the school system are not now made at all, we recommend that there be established as an integral part of the school control a Bureau of Investigation and Appraisal. This bureau should be in charge of a chief or superintendent who is directly responsible to the Board of Education, and should be so organized as to enable it to serve as the central agency for gathering and interpreting statistical and other data with reference to the schools; and for making such investigations as are necessary for the internal development and extension of the work of the school system. Illustrations of the kind of investigations required have already been given.

### **The Board of Examiners**

The Board of Examiners consists of the city Superintendent, who is chairman of the board, and four persons nominated by him and approved by the Board of Education. Our study of the work of the Board of Examiners has caused us to reach the conclusion that this board has performed its duties in a decidedly successful manner. Its responsibilities are very great. While some unfit or partially unfit individuals have been declared eligible for appointment to service as teachers, and some fit individuals have not, nevertheless, considering the many and varied inherent difficulties of determining beforehand the fitness of individuals for effective service as teachers, and also the constant pressure from the many organized interests in the city to utilize appoint-

ments to teaching positions for narrow or selfish purposes, the courage, integrity, and skill of the Board of Examiners deserve general commendation.

So far as the written examinations in the so-called professional subjects are concerned (history and principles of education, psychology, general method, methods of teaching special subjects, and school management), it is apparent that while these examinations fairly test the position of systematized pedagogical knowledge, and the conditions and demands of schoolroom practice, there has not been a conscious effort to bring together the standards formulated by the Board of Examiners and the standards by which the success or failure of a teacher is determined by the supervisory staff. While, to some extent, this gap is lessened by the oral examinations, and in some instances by the practical tests, this gap will exist as long as the members of the Board of Examiners are, in the conduct of their work, completely isolated from the conditions and requirements of classroom teaching.

We find, further, that the range and variety of examinations now necessary are so large as to necessitate an increase in the present membership of the Board. A larger membership would permit further specialization of effort on the part of the members, and this is desirable for the maintenance of a high standard of efficiency.

We accordingly recommend that the Board of Examiners be reorganized so as to consist of nine members—including the City Superintendent of Schools to insure the necessary correlation between the actual work of the schools and the Board of Examiners; that the eight appointed members be divided into four equal groups; and that the members of each group be relieved, in turn, of their immediate duties as examiners for one year, and assigned to such work as would bring them into direct contact with the teaching staff of New York City or elsewhere.

This recommendation aims to secure six active members of the board during each year; to inhibit the recognized tendency of any examining body to become isolated from the situation under their control; and to permit the members of the board to study the needs of the schools in order to bring about a more effective relation between the formal examinations for licensing and the performances within the schools.

## **V. THE BOARD OF EDUCATION AND THE LOCAL SCHOOL BOARDS.**

### **The Board of Education**

Briefly stated, the Board of Education is responsible to the people for the general direction and control of an efficient public school system large enough and diversified enough to meet the diversified educational needs of the city. This responsibility is placed on it by the charter and the general education law of the state.



To discharge its responsibility satisfactorily, the legal functions of the Board of Education should be clearly defined; the members of the board should have a clear conception of the board's functions, including the relation of those functions to the functions of its staff of employees—business and educational; and its organization and procedure should be such as to enable it to discharge all its functions promptly, i. e., without unnecessary expenditure of time and effort; further, it should insist unequivocally on discharging the functions which undoubtedly belong to it; and it should render to the people a lucid and an adequate account of its stewardship. To organize and direct its policies and procedure the board should have a general manager or executive whose authority is commensurate with his responsibility for the work to be done.

We find that none of these conditions of satisfactory school administration by the Board of Education are adequately met; and that, in consequence, in addition to the natural difficulties which face the Board of Education in the performance of its duties, unnecessary or artificial difficulties exist, which make its enormous task almost impossible of accomplishment. The present condition of the board's affairs is due to an accumulation of ill-considered laws, and a service-defeating division of power and responsibility, which seriously endanger the educational welfare of the city. A reorganization of the present system of administration, including the financing of the school system, is accordingly imperative.

The Revised Charter (1061) declares that "there shall be in the City of New York as constituted by this act a Board of Education which shall have the management and control of the public school system of the city, subject to the general statutes of the state relating to public instruction and to the provisions of this act. . . . For the purposes of this chapter the Board of Education shall possess the powers and privileges of a corporation" (1062). "There shall be the following administrative departments in said city. . . . Department of Education" (96).

Is the board thus constituted a separate corporation or a department of the city government? The courts and the legislatures have repeatedly held that the "common school system is an institution of the state and not of any particular locality therein," and its officers are not local officers, but officers of the state system even when those officers are appointed by the mayor of a city. "Education is not a city, village, county, or town business. It is a matter belonging to the state government." "The city cannot rent, build, or buy a schoolhouse. It cannot employ or discharge a teacher. . . . All this results from the settled policy of the state from an early date to divorce the business of public education from all other municipal interests or business, and to take charge of it as a peculiar and separate function through agents of its own selection and immediately subject and responsive to its own control. . . . It is difficult to see how the mere listing of the Board of

Education among city departments makes any change in its corporate powers, duties, or liabilities. . . . It is still the sole representative of the school system with exclusive powers to control and administer all school property and school funds."

Further, the State Commissioner of Education, according to the Education Law of 1910, is the chief executive officer of the state system of education. He has authority to decide appeals brought to him from official acts of boards of education or school officers in cities or union free school districts.

All this is in entire accord with the growing tendency in other states as well as New York to separate public education from all other municipal functions and entrust it to independent corporate agencies of its own creation.

We find that the policy incorporated in the law and in court decisions cited in the report from which the foregoing quotations are taken is not now carried out either in its spirit or its letter. A counter-conception holds, namely, that the school system is essentially a subordinate city department. It has gradually come about that the Board of Education is not "the sole representative of the school system, with exclusive powers to control, manage, and administer all school property and school funds."

A conspicuous illustration (one of many that might be selected) of the difficulty of conducting the business of the school system according to present methods, and the legal uncertainty of present procedure, given in detail in the report, is found in the making of leases for school premises. Other illustrations are cited in the report.

The comptroller's staff may and does suggest changes in the estimates submitted by the Board of Education; the Board of Estimate and Apportionment may and does modify them; and the Board of Aldermen may then reduce them. Salary schedules for each division in the offices of the Board of Education are fixed, and the number of employees allowed is specified by the fiscal departments of the city. When a janitor is to be employed to care for a building, the Board of Education must ask the Board of Estimate and Apportionment to recommend that the Board of Aldermen fix his salary.

The Board of Education has felt the tendency of the Board of Estimate toward the centralization of municipal activities increasingly for some time. The board is now hampered and hindered by the continual necessity of asking the Board of Estimate to transfer money from one fund to another in order that it may meet the necessary readjustments that the school service requires.

Such administration takes the control of public education away from the Board of Education, and transfers it to other city boards and bodies. It leads to interference with the educational economy of the school system by municipal officers and bodies not responsible for its management. This departure from the settled policy of the state in keeping

the work of public education distinct from all other municipal interests and business would seem to require, as the Court of Appeals has said, express warrant in law "in language so clear that no doubt would arise as to this change of policy."

We accordingly recommend that the laws governing the Department of Education be codified; that the Board of Education employ a legal adviser of its own; that immediate steps be taken to secure from the courts an interpretation of such parts of the law as are not clear in order to fix definitely the responsibility of the Board of Education and all municipal boards and bodies for the administration of school affairs; and that the law be strictly followed.

In the matter of appropriations for school purposes, in general, we find that shortage of funds and insufficient control of funds in the hands of the Board of Education have affected every department of the school system, and hence that both the more careful preparation of estimates and the more careful consideration of them when made are required. Somehow or other, the Board of Education must educate the children. It is conducting an enterprise whose expansion and changing conditions are not subject to its volition. Its territory is so vast and changes within it are so rapid and so continuous that the Board must have a large degree of freedom as to the size of its funds and the control of its funds in order to meet its needs and make the readjustments required. This freedom it does not now possess. Estimates for school expenditures, however carefully based on data derived from past experience—as they should be—must therefore provide for a margin to cover the internal changes and the growth that cannot be foretold. But if the most careful statement of its needs that can be made is submitted by the Board of Education, and if this statement receives equally careful consideration by the tax-appropriating bodies, the inevitable friction between the tax-appropriating and the tax-consuming bodies will be reduced to the minimum.

We find, further, that the methods of accounting to the fiscal authorities now employed by the Board of Education require modification. Proper accounting is, of course, indispensable; but uniformity of accounting for different departments does not sufficiently take into account the great difference between the business to be transacted by the different departments. The present methods interfere too much with the prompt and effective discharge of educational business. Methods of advantage in other departments are almost inevitably disadvantageous in the department of education. In any event they should be introduced only after a thorough study of them has been made, and their practicability and effectiveness in promoting the transaction of the business of the Board of Education have been made clear.

The foregoing recommendations and suggestions are intended to provide immediate relief from the present situation. But for the perma-

ment and progressive development of the school system, the city will need new and important legislation. The many external hindrances to the efficiency of the school system can be removed only by making the school system independent of the city government. Education is not a function of society subordinate to government; it is a coördinate function.

Other cities and states have recognized the validity of the principle just stated and have acted on it. For example: In Pennsylvania the school code which went into effect Jan. 1, 1912, makes the School Board of Philadelphia (and other cities of the state) an independent taxing body, and gives it (and them) authority to make loans; the board controls its own funds, and is accountable directly to the people. In Indianapolis the Board of School Commissioners is a separate and distinct corporation. It has the power to make its own levies of tax up to a maximum of sixty-seven cents on the hundred dollars of taxables, and the statutes also give the board a bond-issuing power. The municipal government of a city, town, or village in Missouri has nothing whatever to do with school control. The boards of education of St. Louis and Kansas City are therefore independent bodies with tax-levying powers of their own, and full authority under the state law to do all things necessary to accomplish the purposes for which the schools exist.

We accordingly recommend that the established policy of New York state "to separate public education and the control and management of the schools from all other municipal interests and business" be carried out by making the Board of Education independent of the city government and giving it the power to determine the amount of money needed for school purposes.

Further, legislation is needed to secure a new kind of Board of Education. The present board is much too large. The trend in American cities in recent years is toward small boards of education. American cities have come to see that a large city must have a small board. The large board lacks unity, a clear conception of its functions, and definiteness, promptness, and energy in the performance of its duties; and non-progressive school administration is the inevitable result.

The defects of the large board are plainly seen in the record of the Board of Education of the City of New York. As a board "It has not come to close quarters with its work. It has trusted its committees to handle its business. It has no definite educational policy. It has not led in educational matters. It has not upheld the education law. It has not charged itself with the duty of striving to perfect the law. It has not fought for adequate appropriations for school purposes. It has not co-operated in the proper measure with the local school boards. It has not devised one system for the administration of its business, but several more or less unrelated systems. On the other hand, it has helped to pass 'the anti-merging bill,' which makes mandatory upon it and its successors the appointing of all candidates whose names are on the eligible list for

three years, no matter how many better qualified teachers are available."

Accordingly, we recommend that New York City take steps to secure a small unpaid Board of Education (by small, we mean five, seven, or nine members); and that the board systematize its work; and clearly separate its functions from those of its executive and technical staff. Such a board should not be paid, because that would cause the board to attempt to exercise executive and technical functions, and for the proper discharge of these functions the members of the board have neither the time nor the requisite technical knowledge and skill.

The Board of Education is a body of laymen—representatives of the people. As such their chief duty is to appoint a competent staff, retain them in office as long as they are competent, and hold them responsible for the executive and technical functions to be performed. The board does its work chiefly by requiring and hearing reports from its staff on work done or to be done, by deliberating on and criticising such reports, and by legislating on the work done or the measures proposed; and by rendering a clear and an adequate account of its activities to the people. One of the most important immediate duties devolving on such a board would be to study its own functions so as to enable it to distinguish clearly between those functions and the functions of its executive and technical staff. Until the board does recognize the difference between these functions real progress in the administration of school affairs is impossible.

Such a board (and the present board) should have a general manager to unify, energize, and direct the work under the general control of the board; and since this work has for its object the education of the children—for which every detail of the school system exists—the general manager should be the City Superintendent of Schools; and his authority should be commensurate with his real responsibilities.

At present neither the charter nor the by-laws of the board define the functions of the City Superintendent as they should. The work of the general offices is in a dismembered condition. Much business is now unnecessarily delayed and uneconomically handled as to expenditure of time and energy. As general manager of the whole educational enterprise the City Superintendent should make his office an administrative clearing house for all its activities. A great gain in the efficiency and dispatch with which matters are attended to would be the natural result.

A small board would have very few or no standing committees. The present board, like all large boards of education, transacts its business through committees. While most of the present committees are efficient as such, the members of them devoting much time and thought to their work, the transaction of business by the committees is nevertheless an important cause of the conspicuous inefficiency of the board. The committee system leads to a confusion of authority and action between the board and its committees, and between the committees themselves. Matters requiring decision by the committees must be referred and re-

referred; and differences of opinion on the part of committees may and do defer action indefinitely, or prevent it altogether. Whatever unity of action now obtains among the several committees is accidental, or is obtained by prolonged correspondence between them; and this means vexatious and service-impairing delays or even paralysis of the business of the system.

All this is due to a failure to distinguish between the general administrative control, which the Board of Education should exercise as a whole, and the detailed executive functions that should be delegated to its administrative and supervisory staff. Whenever the board charges one of its committees (or itself) with the details of executive or technical details, it attempts the impossible; and it loses sight of its own most important and vitally essential function, namely, that of deciding general policies and seeing that its deliberate judgments on those policies are effectively carried out by the staff. The staff, under the direction of the City Superintendent as coördinator and general manager of all the board's business, and not the committees of the board, have the time and should have the special qualifications required for carrying out the decisions reached by the board. That is what the staff is for.

Accordingly, we recommend that the Board of Education confine itself to the general direction and control of the school system; that the board recognize the necessity of becoming acquainted with its work as a whole, and of employing the informed and deliberate judgment of the whole body to conduct its business; that it turn over all executive and technical functions to its staff, under the unifying leadership of the City Superintendent as the board's general manager or chief executive; and that the work of committees, if committees are found necessary, should be limited to the preparation of business for the board's consideration.

Further, to prevent needless and business-obstructing jealousy of function between the board and its general manager, and to make his position on all official acts a matter of record, we recommend that the City Superintendent be *ex officio* a member of the Board of Education. Precedents for making the chief executive a member of governing boards of educational institutions are found in the management of American universities; and the causes which led to such action are altogether similar to those now prevailing in the administration of city school systems.

Finally, in view of the fundamental importance of the reorganization of the administrative system of the Department of Education outlined above, we recommend that the Bureau of Investigation and Appraisal carefully follow up the working of this reorganization if it be adopted, or in so far as it may be adopted, so that a foundation for progressive improvement may be laid in well authenticated, recorded, and organized experience.

### The Local School Boards

The list of duties to be performed by each of the forty-six local school boards is extensive. Some of them rightfully belong to a board of laymen such as the local boards are; some of them ought not to be assigned to such boards, they belong to the executive and supervisory staff. We accordingly recommend, first of all, a revision of the duties of the local boards with a view to eliminating the confusion arising from the assignment of duties to the local boards that should be assigned to the staff, and for which the staff should be held responsible.

We find that while a few local boards take their duties seriously, and are really helpful to the schools of their districts, at present these boards, on the whole, render little real service. The principal reasons given by local board members for the feebleness of the local boards are that the local boards have responsibility, but no authority, together with the paralyzing discontent growing out of such a situation; and the failure of the Board of Education actively to encourage the coöperation of the local boards.

The first of these reasons does not seem to us valid. The authority of the local boards ought not to be increased. Nothing could be worse for the school system than to have the authority for school administration dispersed throughout the forty-six districts. Their functions are the functions of lay visitors officially designated to keep the people of their several districts in touch with the schools. As such, they not only visit and report to the Board of Education on what they see in the schools; they are also, or should be, the watchful lay guardians of the educational interests of the people. In this great city the Board of Education is too remote from the local neighborhoods to keep well informed concerning the response the schools actually make to the people's needs as seen by the people. This information the local boards should get, and after thorough deliberation transmit to the board. The local board may and should keep in personal touch with the teachers, supervisory officers, and parents of their respective neighborhoods, and thus supply a valuable local watchfulness and support to all concerned. They should not themselves attempt to interfere with administration, supervision, or classroom work, but they should convey their views, as laymen, to the proper officials, or to the Board of Education, or both. Their real functions should therefore be definitely recommendatory, not administrative. For the adequate discharge of these functions no more authority is required than they already possess. Rather, as has been pointed out already, some of the duties now devolving on them should not be assigned to them; and a revision of their duties should be made with a view to relieving the local boards of such duties and assigning them to the executive and supervisory staff—where they belong.

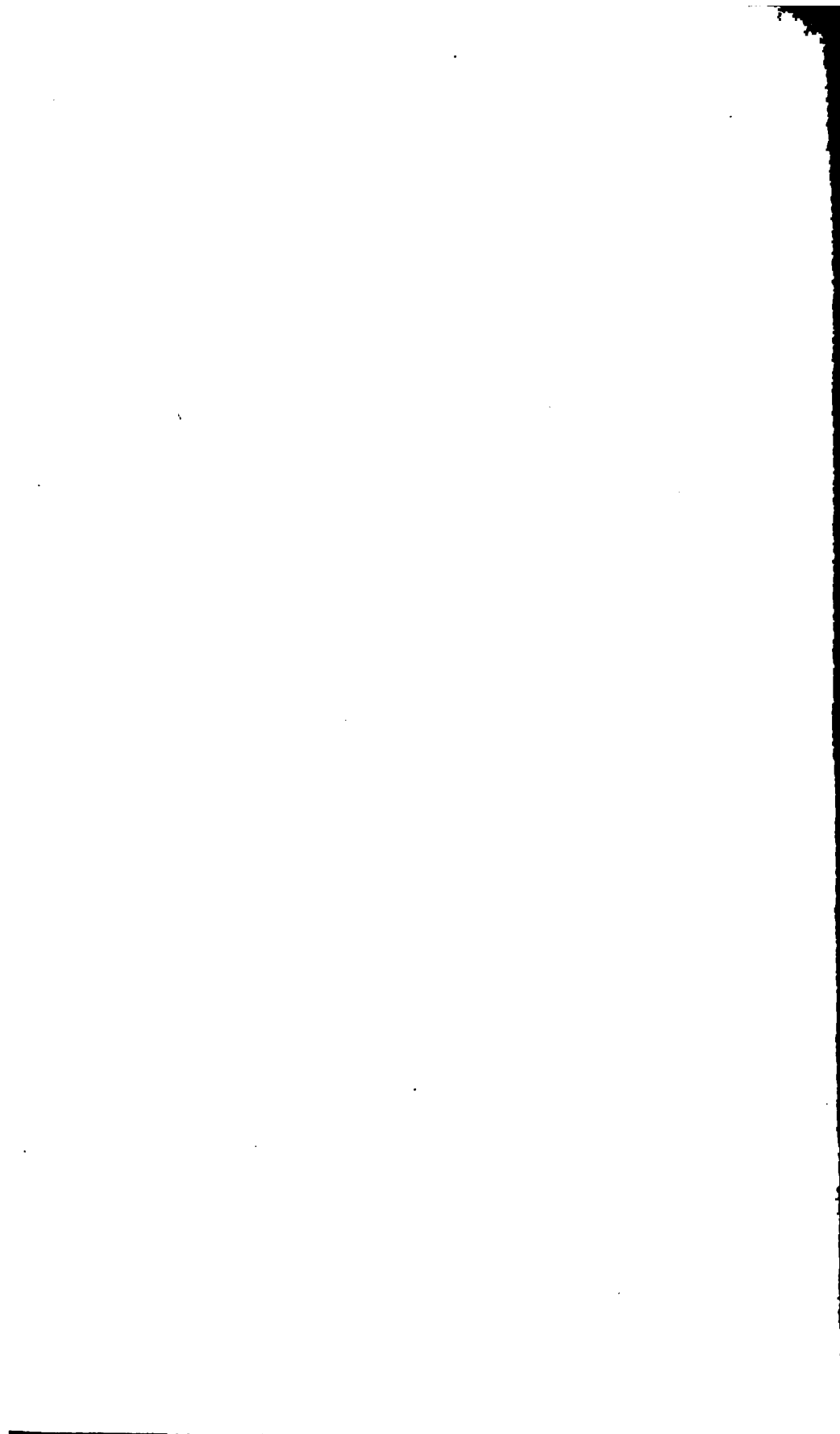
As to the second reason given for the inefficiency of the local boards,

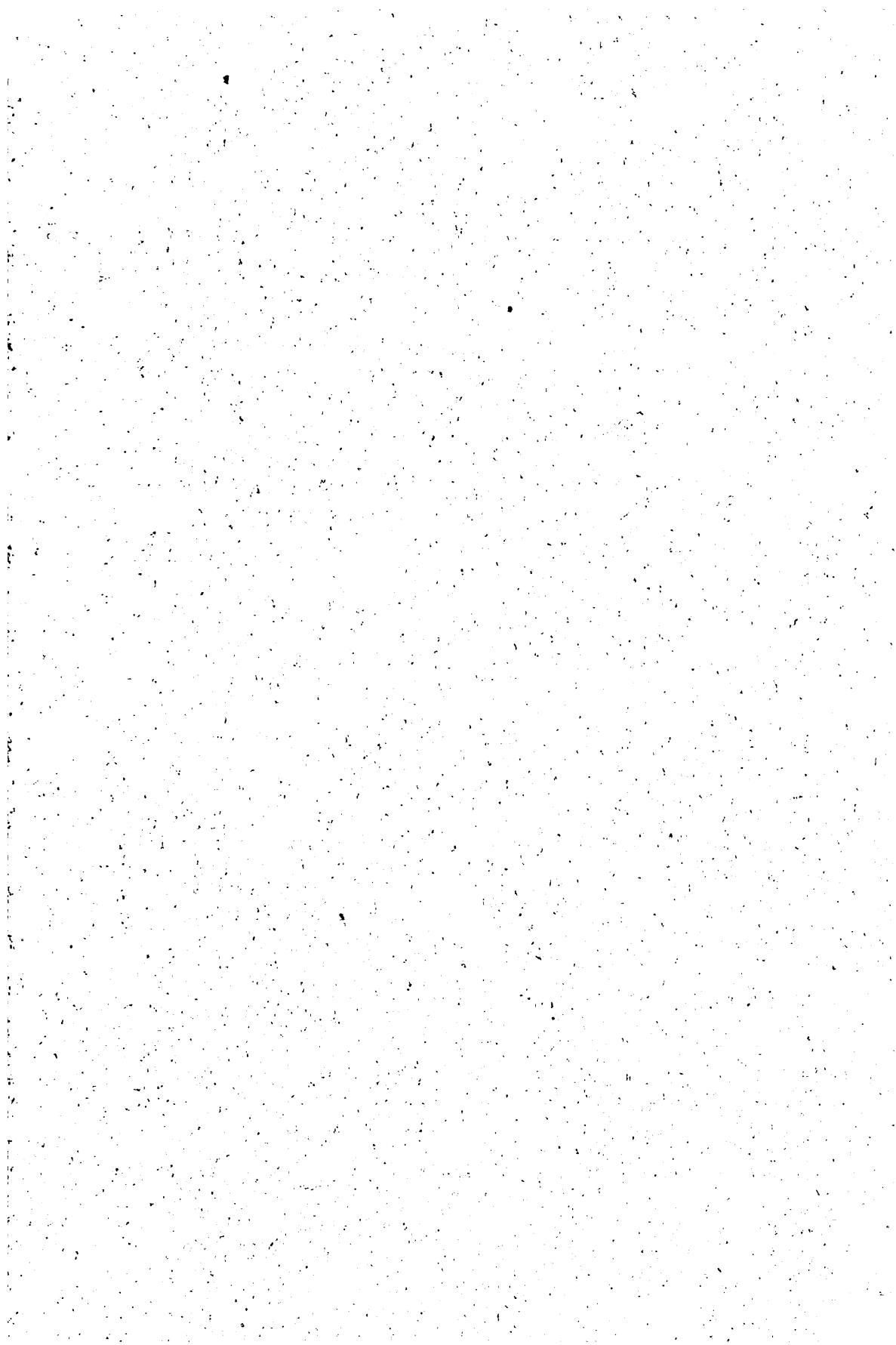
it seems clear that, unless the Board of Education actively encourages the coöperation of the local boards, no helpful coöperation can be expected. There is no doubt that the Board of Education as a board has not concerned itself much with the local boards. So far as the records furnished us go, they show that wherever the member of the Board of Education who is a member of a local board is faithful and active as a local board member, the local board does render a real service to its district. But such instances of active membership in a local board by a member of the Board of Education are not common. If some one officer in the general offices were charged with working out the details of a plan of helpful coöperation with the local boards, including regular reports on their work, a useful scheme of mutual helpfulness would result. We accordingly recommend that the legal duties of the local school boards be revised in such a way as to make their chief duty that of visiting and inspecting the schools, and developing the interest of the community in them; and that the Board of Education do everything in its power to make them an integral part of the organized school service.

From the foregoing, it is clear that in spite of the progress the public school system of New York City has made since the consolidation, it is seriously defective. It needs thorough reorganization in respect to its administration by the Board of Education and the supervisory staff; and in respect to its general system of supervision. The Board of Education needs a clear conception of its functions, and should come to close quarters with its work. In the general system of supervision, helpful coöperation under leadership should replace bureaucratic control. The Board of Superintendents fulfils no useful function, and should be abolished. The Board of Examiners is decidedly efficient, but needs reorganization to improve and maintain its efficiency. The quality of the teaching in the elementary schools, at least, is, in general, not good. The courses of study for elementary schools and for high schools need thoroughgoing revision, and flexibility should replace rigidity in their administration. Provision for the discovery, segregation, and treatment of mentally defective children is inadequate and unsatisfactory. The compulsory attendance service is inefficient; it emphasizes police functions rather than preventive measures, and the staff needs reorganization on a functional basis. The recognized advantages of intermediate schools in relieving congestion have not led to the further establishment of such schools, and no attempt has been made to realize the exceptional educational opportunities these schools afford; promotions and non-promotions are not studied so as to yield a real basis for a maximum rate of promotion; part-time classes should be abolished; the estimated need of teachers for elementary schools and for high schools is not based on indisputable and well-organized data. The provision for industrial education is so meager as to be almost negligible; neither industrial nor commercial education is so maintained as to secure



the necessary effective coöperation of industry and commerce, and co-operative and continuation schools are wholly absent. Habitual self-scrutiny and an appeal to well-conducted investigations and experiments to secure the necessary data to confirm or refute educational opinion and furnish the regulative for all the activities of the school system and for its adequate financial support are lacking.







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## INTERIM REPORT

### Committee on School Inquiry Board of Estimate and Apportionment

*Embracing*

1. Letter of Transmittal
2. Excerpt from "The Report as a Whole"  
By PROFESSOR PAUL H. HANUS
3. Report upon (a) The Quality of Classroom Instruction,  
(b) The Course of Study, and (c) The Supervision  
by Principals

By DR. FRANK M. McMURRY  
Professor of Elementary Education, Teachers' College, Columbia University

#### *Committee on School Inquiry*

JOHN PURROY MITCHEL

*President of the Board of Aldermen*

WILLIAM A. PRENDERGAST

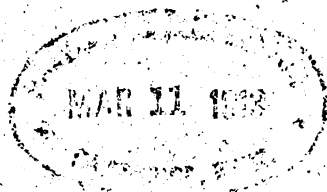
*Comptroller*

CYRUS C. MILLER

*President of the Borough of the Bronx*

CITY OF NEW YORK

1911-1912



Prof. P. H. Ransom,  
Cambridge

JANUARY 29, 1913.

*To the Honorable, The Board of Estimate and Apportionment:*

GENTLEMEN:—The Committee on School Inquiry herewith transmits to your Board a section of the report upon the educational aspects of the school inquiry, being a monograph by Dr. Frank M. McMurry, Professor of Elementary Education, Teachers' College, Columbia University, upon (a) The Quality of Classroom Instruction; (b) The Course of Study; (c) The Supervision by Principals. Prefixed thereto is printed the section of "The Report as a Whole," prepared by Prof. Hanus, which deals with the subject matter of the accompanying monograph.

The monograph transmitted was first sent to the printer by Prof. Hanus in the form of manuscript on June 29, 1912, was transmitted by the printer to the writer and Prof. Hanus for revision on July 15th, 1912. Since that time, the monograph has been undergoing revision by the writer and by Prof. Hanus and correction by the printer, and was received by your Committee, with the final approval of the writer and of Prof. Hanus, on January 7, 1913.

The monograph is submitted for the information of your Board, and for discussion and conference as a preliminary to the submission of the final conclusions and recommendations of this Committee.

Respectfully submitted,

JOHN PURROY MITCHEL,  
*President, Board of Aldermen.*

WM. A. PRENDERGAST,  
*Comptroller.*

CYRUS C. MILLER,  
*President, Borough of The Bronx.*  
Committee on School Inquiry.





EXCERPT FROM

## **"THE REPORT AS A WHOLE"**

BY

PROFESSOR PAUL H. HANUS

### **(1) Scope and Quality of the Instruction and Supervision by Principals**

While the city provides a comprehensive program of elementary education which might conform to the standard formulated above, the actual work of the schools, in large part, both in its spirit and in its details, cannot be commended. While there is much good to excellent teaching, and some equally good to excellent supervision by principals and district superintendents, the quality of the teaching and supervision is, in general, not good. This adverse judgment of the spirit which dominates the actual work of the schools—the spirit of formalism in subject-matter and method, and the disregard for adaptation to social and individual needs—extends also to the course of study and the syllabi; for the quality of the teaching cannot be judged apart from the course of study and the supervision by the principals and superintendents. The course of study is, indeed, fundamental, because it embodies the aims on which the work of the schools is based; but the supervision by the principals and other supervisors is necessarily a perpetual influence in determining the quality of the teaching; and the syllabi issued by the Board of Superintendents are intended to interpret to all their subordinates the aims and spirit of the course of study, and to suggest the methods whereby these aims and this spirit may be incorporated in their work—and in all these respects, as has been said, the elementary education of the city is, in general, seriously defective.

Our judgment of the details of the course of study and syllabi and of the quality of the teaching and supervision is based on a study of the printed course of study and the syllabi, on actual inspection of the work of the teachers, principals, superintendents and other supervisors, and on conferences with them. Course of study, syllabi, and supervision were judged by their success or failure to provide adequately for the acquisition of certain fundamental habits on the part of the pupils, those habits, namely, which are of vital importance in daily living. The quality of all three depends on the extent to which they accomplish the purpose of enabling the pupils to acquire as good a command of themselves and of

## EDUCATIONAL INVESTIGATION

their material and social environment (social resources) as their stage of development requires and permits.

To this end the emphasis in the subject matter of instruction (course of study) should be on those elements of it which enable the pupils to assimilate the worthiest ideals, the real issues, and the most useful practices of contemporary life. Or, briefly, that subject matter is most valuable that enables the pupil to appreciate and to deal effectively with the resources and problems of contemporary life, so far as his stage of development permits; and the course of study and syllabi are defective because they do not provide satisfactorily for this subject matter. On the contrary, they emphasize the formal aspects of knowledge rather than its living elements.

That teaching is most effective which develops habits of initiative, self-reliance, constructive imagination, judgment, and reasoning on the part of the pupils—habits essential to efficient thought and action. The teaching in the schools is defective, in general, because it does not aim at and fails to secure these fundamental mental habits and the corresponding conduct on the part of the pupils.

Supervision by principals and superintendents is most effective when it conspicuously helps to secure the course of study and the method just described. Since neither course of study nor teaching is good, the supervision is not good; it shows, rather, the lack of educational leadership; and this judgment was further confirmed by conferences with the teachers and inspection of the work of the supervisory officers.

For the improvement of the work of the elementary schools, we suggest, first, certain minor but important changes in the course of study such as the elimination of technical grammar as a separate study; a thoroughgoing revision of the course in nature study and natural science; the elimination of English history as a separate study, restricting it to those topics that are necessary for the proper understanding of United States history, to be taught in connection with United States history; the elimination of a considerable part of the present course in arithmetic, restricting it during the first six years to securing accuracy and reasonable facility in the fundamental operations—addition, subtraction, multiplication, and division of whole numbers and simple fractions, both common and decimal, together with percentage and its simplest applications to interest and trade discount; and the reduction during the last two years of the time devoted to arithmetic to not more than three forty-minute periods per week; and during those two years, chiefly, except as individuals may require additional instruction in the fundamentals, to applications of arithmetic in geography, history, nature study, manual training, and other subjects; and, further, an extensive rearrangement of the subject matter of the course of study to establish a fuller correlation among studies, in the interest of unification of the

## THE REPORT AS A WHOLE

pupils' acquisitions; and particularly a thoroughgoing revision of the work of the seventh and eighth years.

On this last point I desire to make a recommendation with which some of my associates may differ. It is this: Whether the thoroughgoing recommendation for flexibility in the course of study recommended below is adopted or not, it seems to me important that greatly increased flexibility in subject matter and administration should characterize the instruction of the last two elementary school years, in harmony with the varying future careers of the pupils. Some of the pupils are going on to the high schools, some are going into industry or commerce or home life as soon as they are freed from school by the compulsory attendance law. Many of the pupils in these years are over age and have no interest in the usual "academic" work beyond reaching the standard that will set them free. In any case a single uniform course of study for these pupils is not satisfactory in view of their different purposes. I suggest, therefore, that in a few schools, at least, the experiment be thoroughly tried and appraised long enough to really determine its value or the reverse, of a differentiated course of study; one for pupils going on to the high schools, rich in the usual academic studies (including a modern language, if well taught); one for pupils going into industry, rich in the right kind of manual training, and in the domestic arts for girls; and a third for boys and girls going into stores or other commercial shops, rich in elementary instruction in commercial subjects. While no one of these differentiated courses should neglect the subjects emphasized by the others, the dominant subject matter should be clearly evident to parents and pupils alike. Such differentiated courses are already established in a near-by state, and are decidedly promising in ministering to social and individual needs, not only holding pupils in school, but giving them something of real value to them while they remain. There is every reason to believe that such courses might prove to be equally advantageous in New York City. This recommendation applies with special force to the intermediate school, to be discussed later.

Over and above the foregoing suggestions for the improvement of the course of study in certain details is the following—which, however, covers those already made; namely, the adjustment of the entire course of study to individual and local needs throughout the city. The differences in respect to individual and local needs in the hundreds of elementary schools in New York City with its heterogeneous population are very great, and they are not now satisfactorily taken into the account.

A single uniform course of study prevails throughout the city. True, it is claimed by the City Superintendent that the liberty of principals to adapt and modify the course of study to local and individual needs is "practically infinite"; but justly or unjustly, that is not the view of their responsibilities held by great numbers, perhaps the majority, of the prin-

## EDUCATIONAL INVESTIGATION

cipals. They point out that they are bound by the syllabi; and that means uniformity. Conspicuous lack of adaptation of subject matter and method to social and individual needs therefore abounds, with corresponding lack of satisfactory achievement. We, accordingly, suggest that great relief and improvement would follow the gradual adoption of different courses of study and syllabi for schools in different parts of the city—these courses to be worked out by the principals and teachers, aided by the best of their superior officers; and that these courses be tried long enough to show their value or otherwise. (It is conceivable that each school in the city might advantageously have an appropriate course of study, differing, to some extent at least, from every other.) This would bring professional insight, life, and enthusiasm into the schools, where now there is passive or restive conformity to what is undoubtedly regarded justly or unjustly as a prescribed routine, with its deadening effect on pupils and teachers. The present conditions point to an enormous loss of educational opportunity, to say nothing of money. We urgently recommend that this plan be seriously considered, and, if possible, acted on without delay.

It will be urged, of course, that, because of the great number of pupils and the shifting of the school population, uniformity is necessary for satisfactory administration; but the schools exist for the children, not for the system. If the proposed plan is wise, and if it commends itself to those whose business it is to administer it, the way to carry it into effective execution, though much more difficult than the present administration of a uniform course of study, will be found. The great importance of securing suitable flexibility in elementary education, instead of what is now largely an attempt at rigid uniformity, with its deadening effect on teachers and its failure to educate the pupils (by the standards we have applied, at least) justifies the most serious study of our recommendation, however fantastic it may seem to some persons—and, in our opinion, the adoption of it for thorough trial after such consideration. If its adoption seems to be impossible, then some other effective plan to accomplish the same end should be found without delay.

Improvements in the course of study would naturally be accompanied by corresponding improvements in such syllabi as would still be found necessary. When teachers and principals themselves make the course of study and syllabi, as they should, all but the poorest teachers are imbued with the spirit embodied in them, and their methods will be in harmony with this spirit and their conscious aims.

For the unsatisfactory supervision by the principals the principals themselves are not wholly responsible. Purely administrative duties, owing to the great size of many of the schools, leave the principals without time for supervision; little real authority is possessed by the principals in regard to the course of study or methods; a widespread tendency to regard the district superintendents rather than the principals as the

## THE REPORT AS A WHOLE

actual heads of the school; the absence of authorized means of securing prompt and well-considered replies to recommendations submitted by the principals to their superior officers; the required frequency of the rating of teachers, and the method employed in rating them—all these seriously hamper or prevent able principals from giving their teachers helpful supervision. For these conditions unfavorable to satisfactory supervision the principals are responsible only in so far as they acquiesce in them. That is true also, finally, of another reason for the unsatisfactory supervision by the principals, namely, the absence of a clearly conceived theory of supervision—its aims and methods.

These conditions can be improved if initiative be encouraged among principals, and their coöperation under the leadership of their superior officers be systematically promoted. Such initiative and coöperation would undoubtedly also check the further establishment of enormous elementary schools—schools having upward of a hundred teachers—it would tend to place on the principal the authority he requires for the proper supervision as well as administration of his school; it would provide for a recognized channel of communication from the principals individually and collectively to their superior officers, and would keep this channel open and in use; it would tend to improve the basis and the method of rating teachers, and so make possible a reduction in the frequency of this rating, with an increase in its value; and it would develop a conception of really helpful supervision of inestimable value to the progressive efficiency of the schools.

Supervision by district superintendents is discussed later, in connection with the general system of supervision.

It is impossible to discuss here many details treated in the report. But two such details, at least, must be referred to, because of their immediate vital importance.

A serious administrative problem is presented by persistently unruly children. This problem deserves careful and immediate attention because of the harmful effect of such children on the classes and schools where they are found. The character of some of the pupils in many schools necessitates a change of policy in the city in relation to corporal punishment. It is not now permitted, but is nevertheless practiced. It cannot be avoided. It is the inevitable result of persistent harassing of teachers and principals by unruly and defiant pupils. Such pupils can only be restrained by force from a downward career for themselves, and from exerting a baneful influence on the welfare of their classmates and even entire schools. It is manifestly unwise, however, to have punishment administered in violation of the regulations. Our study of the existing conditions induces us to recommend, (1) That the by-laws of the Board of Education expressly forbidding corporal punishment be rescinded; that the number of parental schools and disciplinary schools

## EDUCATIONAL INVESTIGATION

be increased; that the mode of commitment to these schools be greatly simplified; and that corporal punishment be allowed in them; (2) That in other schools when it is deemed advisable by the principal, one class or more, composed of persistently troublesome children, shall be formed, after the type of the present ungraded classes; and that in these special classes corporal punishment be allowed under certain restrictions set forth in the report. The mere knowledge on the part of unruly children that they may be subject to corporal punishment will often make such punishment unnecessary. The arrangement here recommended will, we believe, reduce the number of cases of corporal punishment to the inevitable minimum, and will greatly benefit all concerned.

Important as vocational guidance is, hardly a beginning of systematic endeavor in that direction in the hundreds of schools throughout the city has yet been made. What is most needed is organized effort toward equipping selected teachers so that they can serve as leaders in the difficult task of utilizing such resources as are now available for the actual work of vocational guidance; and in adding to those resources. It may not be out of place here to emphasize once more the fact that vocational guidance does *not* mean merely helping boys and girls to find work, but to find *the kind of work they are best fitted by nature and training to do well*. It *does not* mean prescribing a vocation; it *does* mean bringing to bear on the choice of a vocation organized information and organized common sense. It should therefore not only tend to bring about a better adjustment of the boy to his work, but also point the way to more education for more efficient work.

From the foregoing adverse judgment on the quality of the instruction in the elementary schools, the kindergartens are expressly excluded. The kindergartens are plainly fulfilling their purpose reasonably well.

REPORT ON  
EDUCATIONAL ASPECTS OF THE  
PUBLIC SCHOOL SYSTEM

OF THE CITY OF NEW YORK

TO THE

COMMITTEE ON SCHOOL INQUIRY  
OF THE BOARD OF ESTIMATE  
AND APPORTIONMENT

PART II

*Subdivision I*

*Elementary Schools*

SECTION A.—THE QUALITY OF CLASSROOM INSTRUCTION

SECTION B.—THE COURSE OF STUDY

SECTION C.—THE SUPERVISION BY THE PRINCIPALS

BY

FRANK M. McMURRY, PH.D.

Professor of Elementary Education, Teachers College, Columbia University

CITY OF NEW YORK

1911-1912





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# THE QUALITY OF CLASSROOM INSTRUCTION

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## Quality of Instruction in the New York City Kindergartens and Elementary Public Schools<sup>1</sup>

### I

#### A. Standards

##### **Inadequacy of Customary Knowledge Tests as Basis for Judging Instruction**

It is customary to judge the quality of instruction by direct examination of children in subject matter. For instance, they are asked to state the causes of the Revolutionary War; to tell who is now Vice-President of the United States; to name and locate the capitals of California and Kansas; and to make an outline drawing of South America. If most of such questions are correctly answered, the instruction is called good; if not, it is rated as poor.

We agree, of course, that the acquisition of knowledge is one of the prominent aims of the school, and that it should be considered in any careful investigation of instruction. But such a test, as the sole or principal basis for judging instruction, has seemed to us so inadequate that we have rejected it, and for several reasons.

In the first place, the results depend too much upon accidental conditions, like recency of review of the particular facts called for, or freedom from embarrassment or excitement.

In the second place, the customary examination is too superficial and narrow a test of knowledge. It is superficial because the good memory, which enables one to reproduce facts, whether they have been digested or not, is too much at a premium; it often allows the thoughtless child to lead the class. And it is narrow because the subject matter of

<sup>1</sup> Attention is called to the fact that no attempt is made here to pass judgment upon the entire work of the kindergartens and elementary schools. The topic under investigation is the *quality of instruction* alone. There are aims of the school not fully included in the aims of its teaching, and there are important means for their accomplishment besides instruction, such, for example, as the personal influence of the teacher. The investigation has been thus limited, with the idea that, if this one broad topic were properly treated, more would be accomplished, considering the time and energy at our disposal, than if the entire field were covered.

Twelve persons have shared actively in the collection of data on which this portion of the report is based, visiting at least sixty schools in the boroughs of Manhattan, the Bronx, Brooklyn and Queens. Altogether not less than three hundred recitations were seen, in the majority of which the observation covered all or most of the period. In addition, many teachers and principals (not less than one hundred, in all) have been consulted at length as to the quality of the instruction, and the conditions determining it.

the studies is by no means all that one needs to know. Indeed it is probable that knowledge of right methods of work is even more important. Certainly many an enlightened professor in college is more interested in giving his students an understanding of the proper method of studying his subject than a knowledge of its subject matter; and proper control of method is even more worthy of attention in the elementary school, because habits of procedure are, in the main, acquired there by the great majority of our population.

In the third place, even if the customary examinations fairly tested the understanding of facts, such understanding is still only one of the principal things expected from instruction, and not the most important. Indeed, there are several things above and beyond knowledge which should result from instruction; and the latter does or does not include these according to its degree of excellence. Partly because the customary examinations fail to give information about these higher effects of teaching, they have been rejected as a standard.

Finally, such tests are unsatisfactory because they do little beyond revealing the present status. This investigation has not been undertaken solely with the idea of discovering present conditions. It has been undertaken with the additional purpose, if changes were needed, of pointing out ways in which improvements might best be effected. For that reason, also, it was important that standards for judging instruction be chosen that, while showing how good or poor the instruction now is, should at the same time suggest the directions that further progress might take.

#### **Relation of the Desired Basis to the Aims of the Instruction**

What standards, then, should be set up? The customary examinations do, at least, give one suggestion. Knowledge has so often been taken as the standard of worth simply because it is one of the purposes of instruction, although not the most prominent. This suggests that purposes, in any field, should be the standards of value in that field; this is a suggestion that seems to us to hold, in general, and one that has been of great importance throughout this investigation.

The leading purposes of instruction, therefore, must form the basis for judging its quality; instruction that accomplishes these aims fairly well is of a high order; that which does not accomplish them at all, or very poorly, is of a low order.

#### **Where the Aims of Instruction Must Be Found**

It is not easy to state the main objects of teaching. But since they are commonly supposed to include such a control of themselves and of the world's resources by pupils as will make them high-minded, resourceful, and generally efficient participators in the world's affairs, the more

immediate purposes of instruction must be found among the leading things necessary for proper daily living. That is, we must look directly to the life about us to find what subject matter the school should offer, and how this should be treated. Its curriculum will be good to the extent that it contains problems—mental, moral, æsthetic, and economic—that are socially vital and yet within the pupils' appreciation; and its method of presenting that curriculum will be good to the extent that it exemplifies the methods of solving problems found most effective by the world's most intelligent workers.

This proposition is, possibly, the most debatable one that we have to offer on the question of standards. For many schools, that *seem* to accept character as their final aim, tend strongly to eschew any close relation between instruction and daily living.

We are convinced, however, that much of the present dissatisfaction with the schools, particularly complaint about waste, is due to want of this relationship. We are also convinced that, in taking this position with reference to the elementary school, we are expressing the best modern educational thought.

### Standards Used in This Investigation

Any list of the main elements in daily living that might be taken as standards in judging instruction would vary somewhat in length and quality according to the individual who made it. Yet such lists would duplicate each other to a great extent, because there are certain things that are common essentials to every person's welfare. The following four factors, because of their universality, are particularly worthy of acceptance as aims of school instruction. And while others could easily be added, these few seem to us sufficient in quality and scope to test the general effectiveness of the teaching.

#### 1. The Purposes Inculcated in Pupils

One of these factors is *motive*. One of the great differences between efficient and inefficient men is found in the purposes that move them. The quality of a man's aims chiefly determines the quality of his character; their variety determines his breadth; and their intensity his energy of thought (including imagination), feeling, and action. Purposes bear the same relation to efficiency among young people as among men. One of the primary responsibilities of instruction, therefore, should be to lead pupils to *want* to know, to do, and to be.

This is necessary, first of all, for present conduct. If children behave badly in the street, or if they are lazy, the school is questioned. That is, the public holds the school responsible for developing character *now*, while the pupil is still young. But it is necessary for the future, also. In particular, the time will come when the pupil must choose his voca-

tion. If he has no ardent desires, no plans, his selection must be blindly made. On the other hand, if his ambitions have increased and improved along with his knowledge, a way has been prepared to meet this crisis, and his choice is far more likely to be intelligent and confident.

Instruction cannot, therefore, rest satisfied with cold facts alone. Its quality is to be measured, partly, by its provision for growth in motive. One object of teaching a pupil how to keep the skin healthy should be to arouse a desire on his part to practice the rules of health thus learned. One object of teaching him to play games should be to make him want to learn more games, even throughout life. One object of teaching the Crusades in history might well be, by showing how superficial the causes were, and how much the warfare cost, to influence the youth's attitude toward the present movement for arbitration. One object of teaching about John Hampton is to lead pupils to determine to imitate him. One object of teaching the geography of Germany is, by showing how closely she is shut in by neighbors, to make pupils watchful for magazine and newspaper articles touching the German attitude toward war and her preparation for it.

Such an outcome from instruction cannot be left to chance. It must be secured by careful planning, and in two respects: First, a curriculum must be selected that is near enough to the child's interests to be capable of nourishing ambitions. Not every large topic can be of this nature, but every study can be expected to contain many large topics that have the power of arousing specific hopes for the future.

After such a curriculum has been secured, much depends upon the method of its presentation. An instructor in literature in a certain seventh grade, after having brought her class to a fair understanding of Browning's short poem, "The Patriot," raised the question, "Are we now through with this selection?" The pupils looked somewhat surprised, having supposed that their full duty was performed. But, seeing that more was expected, they replied, after some hesitation, "We might read it again." Also "We might memorize it." They were endeavoring to satisfy the teacher rather than to express any plan that had appealed to them.

Yet the poem might, without difficulty, have been so presented that the children would have replied with some enthusiasm: "I want to come back to this, particularly to enjoy the first two stanzas in contrast with the fourth and fifth; I want to see whether such a quick change of fortune often happens in real life; also to see whether the fault, in such cases, lies with the man himself or with the people." The teacher possessed the skill necessary to secure such responses; but there was little evidence that she had planned for them. Thus definite planning and some skill, both in the making of the curriculum and in its presentation, are required, in order to inculcate purposes properly, or to meet this first test of the quality of instruction.

## 2. Consideration of Values

A second extremely important factor in daily living is the weighing of values. Worth is one of the most common and necessary ideas in adult life. Any business man will illustrate this fact in five minutes of conversation. In any field of experience there are usually facts, ideas, and projects of varying value, and excellence in distinguishing their relative merits is a kind of excellence that every one requires; it is based on a study of causes or reasons and is synonymous with good sense, or wisdom. It is important to keep in mind that good judgment mainly signifies proper appreciation of relative values.

Considerations of worth are approximately as common and necessary among children as among adults. They judge the merits of teachers and the justice of treatment from both teachers and parents quite freely, whether we like it or not. They must often judge when it is safe to cross a street, what wrap they shall wear, what games it is best to play, what treatment they shall accept from their mates, and what kinds of reading matter they shall select. In all such cases they can blunder by overestimating minor matters, or they can show wisdom. Preparation for both their present and their future lives requires, therefore, that they be constant students of the worth of things.

This makes a study of values a prominent part of school instruction. All school branches contain facts of varying degrees of importance. Many names in history, many dates, many places in geography, many words that one might learn to spell, are insignificant, and should be slighted. Other names, dates, and places, etc., are vital and should receive emphasis. Since it is one of the main needs of children to distinguish between these two classes of facts, one of the main duties of teachers is to help them do this. By omitting it there are bound to be much waste of time and much misunderstanding of subjects; and by including it a close relation is established between instruction and growth in good judgment.

Provision for this selective habit in study again concerns both curriculum and method. Just as new truths can be understood only through related truths already known, so new values can be appreciated only on the basis of related old values. Therefore, the topics in the curriculum must be near enough to things that are dear to the pupil for him to feel their worth. If a seventh-grade class in history were asked to point to the most important paragraph in a chapter telling about the United States bank, they would have to choose at random, for the topic is too foreign to them to awaken feelings of appreciation. Or, if they were frank, and were asked to state what they most valued in that chapter, they might reply, "Nothing at all." That answer would express their attitude toward many other topics often included in school curricula. All that can be done by them in many such cases is to try to understand

whatever is stated, and memorize it passively, omitting all considerations of value.

But after only suitable subject matter has been selected, much still depends upon method. Good method will ever keep pupils alert to values. For example, some parts of most stories being more important than others, and some errors made by children being more worthy of correction than others, pupils even in the lower grades should be led to consider which are the more significant, with much emphasis on reasons. Most pupils will distribute their time somewhat equally over a given list of words for spelling, unless they are taught to pick out the few that they do not know how to spell, and to concentrate upon them. They will do the same in learning the multiplication tables, and in solving series of problems in arithmetic, unless taught to select in accordance with their individual needs. There should be few recitations in history, geography, literature, or any other subject in which the varying values of facts and tasks are not distinguished.

### 3. Attention to Organization

A third factor of special importance in daily life is organization of ideas, or system—reasoning. How essential this is to success in adult undertakings of all sorts every one knows. No subject is mastered until the relation of its parts to one another is determined, until the facts bearing on each phase are separately grouped, and until enough such facts are collected to give fair support to each controlling thought. Good organization of ideas means all this; it signifies such order and completeness as will assure thoroughness or fullness of comprehension and consequent force in presentation.

The need of organization of facts and ideas by children for the accomplishment of their purposes has received little attention, although we know that scattered thinking is a common enough cause of failure among them. But the importance of orderliness of thought in later life is so generally recognized, that few people hesitate to place responsibility for careful training of children in this respect upon the school, from the kindergarten on.

The school curriculum meets this responsibility to some extent by making the organization of ideas a prominent part of the study called composition; sequence—causal or otherwise—and grouping are there emphasized. But to depend upon that subject alone for securing systematic thinking would be much like depending upon grammar alone to secure correct English. Accordingly the degree of organization of the subject matter in *each* study must be scrutinized, particularly the extent to which each topic is a well-rounded whole, having a central idea that is strongly supported by subordinate facts brought into close sequence. Many curricula give the impression of being composed largely of detached facts.



The teacher's method of presenting facts in class and the kind of response that she accepts from pupils also have great influence on habits of organization. In a certain geography class a teacher, by actual count, put 18 questions in two minutes, a rate which seemed to be habitual with her. That meant approximately 360 questions in a period of 40 minutes. Of course, in such a case as that, each question can scarcely call for more than a single fact, and each reply must be very brief, usually only a fragment of a sentence. Also, in geography in particular it indicates utter neglect of causal sequence. Yet that kind of recitation is not uncommon, and its influence is directly destructive of any tendency toward system.

The scope of a teacher's questions is therefore worthy of close observation in judging the quality of her work; likewise the fullness of the pupils' answers. Broad questions indicate a grouping of the facts in the teacher's mind, and if they are well worded they signify much care in that respect. But even where such questions are put there is a tendency, both in school and college, to accept any lame answer that is correct, without reference to the arrangement of ideas and their forceful presentation. Here is a test of good teaching. Correctness of statement alone is far from sufficient. The answer should be as broad as the question; and it should be quite common, rather than unusual, for a pupil to talk one, two, or three minutes in order to make an effective reply.

#### 4. Exercise of Initiative by Pupils

A fourth factor in daily life that ranks with those already named is power of initiative. In the world at large possibly the most highly valued quality of character is self-reliance, *i. e.*, the ability to act as a leader whether in one's own affairs or in the affairs of others. Every intelligent parent desires to see a good degree of independence developed in his child.

The relation of this power to school instruction is not difficult to discern. Children can be furnished with desirable aims by the teacher; they can also pass judgments about values and organize their facts, doing it all entirely under the teacher's direct stimulus. Or they can do these things and the many others that are necessary in school partly or largely under their own direction. Since they *must* do all of these finally alone, and since they are *supposed* to do many of them alone, even as young children, when they study alone, it follows that the school in particular is the institution that should cultivate in them the power of self-direction.

This quality, like some of the others already mentioned, requires a curriculum intimately related to the child's experiences; for the self-confidence and energy necessary for its exercise are wanting when subject matter is too difficult of comprehension or is foreign to one's interests.

Good teaching never lacks relation to initiative. In all instruction some one must determine the work to be undertaken, must ask questions, and must accept or modify answers. In such tasks the teacher can assume full leadership, making all the plans and deciding when each has been executed; or she can accustom pupils from the kindergarten on to sharing this responsibility, until in the higher grades they can bear a good portion of it. Almost every recitation will reveal her attitude in this matter, and the procedure that she adopts with regard to it will be one of the best single tests of the worth of her instruction.

### **Value of These Standards as Tests of Habits Formed**

The relation of these four standards to habit is one proof of their significance as tests of teaching. Conduct is often defined as a bundle of habits; and since good conduct and purposeful activity are the aim of the school, it is not surprising that Superintendent Maxwell has laid so great emphasis on habit formation in recent years. The value of school government is largely measured by the extent to which it influences such habits as punctuality, regularity, and neatness.

It is the duty of instruction to supplement good school government by inculcating other habits more intimately connected with the acquisition and use of ideas. And instruction is always exerting a strong influence in this direction whether the teacher is conscious of it or not; always inculcating either good or bad ways of using the mind. It may easily accustom young people to working in a listless way, without reference to the comparative values of ideas, on scattered facts entirely, and in helpless dependence on the teacher. Or it may habituate them to the opposite ways of working. And, according as it does the one or the other, it allows waste without limit, resulting in general inefficiency, or leads to great economy and consequent efficiency. A test, therefore, of the principal habits instruction is inculcating is one of the most effective means of determining its quality.

In this respect the above-presented standards show peculiar merit. They center attention directly on the leading habits of thinking that pupils are forming, particularly the habits touching motive, value, system, and independence. And while there are worthy habits not here included, these standards, by measuring what the children themselves are accomplishing along these few lines, afford an estimate of the influence of their instruction on their habit formation in general.

### **Value of These Standards as Tests of Thoroughness of Knowledge**

In any attempt to organize ideas one is primarily concerned with the relations that those ideas bear to one another. They must be grouped and arranged in sequence in accordance with their inner connections; and the excellence of the organization is directly proportionate to the full-

ness of insight into these relations. Careful attention to organization is, therefore, one important means by which fullness of insight, or thoroughness of comprehension—in the scholar's sense—shall be attained.

Attempts to distinguish the varying values of facts show a desire to go beyond the mere connections that they have with one another, and to consider their bearings on human affairs. The reason that some things deserve to be slighted is that they have little to do with our interests; and the reason that others deserve to be emphasized is that they are vital to us. Careful attention to relative values, therefore, gives assurance of an additional kind of insight or degree of thoroughness; not the kind that the scholar, as such, requires, but the kind that any one needs who expects finally to make use of his knowledge.

The requirement that instruction should exert an influence on hopes and purposes carries this latter insight a step further by individualizing it. It is the particular pupil, each time, whose hopes and ambitions are to be affected, and if that is to be accomplished he must see the peculiar bearings of the instruction—whether theoretical or practical—upon his own career. In this case the insight must be so thorough as to lead to some degree of feeling and volition.

Finally, the demand that instruction assume responsibility for the exercise of the pupil's initiative aims at an insight that will allow one to go still further; and to *use* knowledge. Up to this point knowledge is only comparatively thorough, because it is theoretical. But the exercise of initiative involves, to a considerable degree, the independent use of knowledge, and, therefore, control over it, and thus it greatly increases the degree of thoroughness.

Every one knows that the word knowledge is used in many senses, signifying different degrees of thoroughness. The four standards that have been proposed test four of these degrees, beginning with the thoroughness of the scholar—which really insures only information—and ending with the *use* of knowledge, which insures *control* of information, a far higher degree of thoroughness.

#### Their Value as Tests of Instruction in the Three R's

But what about their value as tests of the three R's and spelling? It may be admitted that, in studies where thinking constitutes the bulk of the work, *i. e.*, in studies where the results are not largely dependent upon repetition or drill, these standards may prove admirable tests of thoroughness of understanding. But what about their value as tests of this other class of subjects?

In finding an answer it is necessary to recall the fact that these are often called the *formal* subjects, because they deal so extensively with forms or symbols. The great danger with them is not that they will fail to receive a fair amount of attention, but rather that they will be taught *formally*, or too mechanically. That is, the children are in danger of

learning to read without expression; to spell words wrongly in writing letters to friends which they spelled correctly in lists; to adopt a stilted style in composition because, having really nothing that they want to say, they are thinking mainly about words; to solve book problems successfully in arithmetic when much simpler actual problems prove too difficult. In other words, there is even more danger here than in other subjects that the work will be superficial, taxing mainly the memory. In that case, interest is wanting, attention is divided, and little is finally learned.

The crucial question, then, in these subjects is: Do the words stand for real thoughts? or, How live-minded are the pupils? That is just the question that the proposed standards help to answer. Inasmuch as they direct attention to provision for motive, for exercise of initiative, for selection according to values, and for grouping according to relationship, they gage the thoughtfulness of both teachers and pupils in these branches. For example, they note whether or not a teacher is making selections in beginning reading that are interesting; whether she is directing the pupils at every step, or is leading them to direct themselves largely; whether she is causing special emphasis to be placed upon a word or a sentence or a paragraph that is especially important, or is treating all such things as of equal value; and whether she is having a story read by its natural parts, or is making the individual word or some other small part the conspicuous unit of advance. Thus the life-giving qualities in these formal subjects are tested by these standards.

But, granting so much, the question may still be asked, "Do these standards test the knowledge of words as required in reading and spelling, and of the fundamental operations in arithmetic?"

We admit that there is more doubt here. Some teachers assert that live thinking in these subjects is the best possible guarantee of mastery of the mechanical facts in them, far better than frequent drills. Others assert that frequent drills are the only guarantee.

On account of this doubt we have deemed it wise to fortify our investigation at this important point by supplementing the proposed standards with some actual examinations in formal facts. The Courtis tests have been used for this purpose, which are discussed, along with the conclusions reached, in Mr. Courtis's report.

### **Their Value as Sources of Suggestion for Improvement**

It was deemed important that standards be chosen for judging the quality of instruction which would do more than show merely whether it was good or bad. Very often after an examination has proved that teaching in the three R's has been poor, a cry is raised for more drill as the remedy. But that suggestion is a mere guess. In fact, "being poor" in reading has usually been found to mean that it was too mechanical; and more drill would only make it still more mechanical, and

thus worse. Whatever be the quality of instruction, therefore, standards for judging it should be chosen that suggest desirable ways of making it better.

Here, we think, is revealed one of the merits of the standards proposed. While not testing primarily what children know—although, as explained, they include that—they do two things: they fix attention (a) on what the *children are doing*; and (b) on the value of it as judged by *its relation to the purposes of instruction*.

Suppose, now, that a teacher is found who is asking a great number of questions in geography, which the pupils are answering as best they can. They may or may not show much knowledge. But since self-leadership is one of the purposes of instruction, the pupils should at least participate in proposing the questions. And since organization of ideas is another prominent object, the many detailed questions should be reduced to a smaller number by a more careful grouping of details. Thus such instruction would be shown to be weak (probably) in two respects; and improvement would consist both in throwing more responsibility upon the pupils, and in studying the organization of the facts presented.

These standards, therefore, by fixing attention on the chief things to be accomplished in teaching, directly suggest ways in which improvement might be effected when that teaching is poor.

### Their Relation to the Curriculum

Not seldom is the teacher's method of presenting subject matter the sole question considered when the quality of classroom instruction is under investigation. But the subject matter itself may have been selected without reference to the aims of the school. That is far from uncommon. Then, no matter how skillful the method of presentation, facts are acquired that have no purpose. That means waste. Or, while the facts are of general value, they may lack adaptation to the age or particular experiences of particular children. Then again even a skillful teacher must fail to secure assimilation of the facts. There is waste again. The curriculum, therefore, as well as the method of its presentation, is necessarily a very prominent subject of investigation when the quality of instruction is being considered. Both of these are continually in evidence in any recitation, and they together determine its quality. Any standards adopted must then be clearly applicable to each. In this way the work of the higher officials—the principals and superintendents—who make the curriculum, as well as that of the classroom teacher, receives a direct evaluation. It is partly because the standards above presented are so clearly related to the curriculum that we are convinced of their merit as a basis for testing the quality of teaching. (Their relation to the curriculum is more fully discussed on page 59f.)

## **B. Method of Applying These Standards**

### **1. Two Planes of Instruction**

#### **a. Instruction on the Higher Plane**

In instruction on the higher plane facts are comprehended and remembered; they cannot be neglected because they are the raw material with which instruction deals. But they are mainly the means, not the end in themselves. Efficiency on the part of the pupils is the goal; and facts are selected and presented with the object of making the pupils energetic and high-minded; judicious; forceful; and self-reliant. Review must always play a prominent part in good instruction; but review by thoughtless repetition, or *drill*, is not prominent here because it is not necessary. Most of the facts are overhauled and associated in so many thoughtful ways that they are understood and remembered without the help of mechanical repetition. But the striking fact here is the evident relation between the instruction and the principal aims of the school. No doubt some recitations do not hint at this connection; but a majority of them are so conducted that a striving for the higher objects, and a partial attainment of them, are plainly observable.

#### **b. Instruction on the Lower Plane**

In instruction on the lower plane the comprehension and retention of facts and mechanical skill, rather than certain effects upon the more important habits of pupils, are the acknowledged goal. The subject matter of the curriculum is here more carelessly selected because the need of very careful selection is not felt. Also mechanical repetition is far more frequent because lack of motive, of abundant association, etc., makes it compulsory. Some of the recitations give glimpses of a relation of the facts studied to the higher aims; but the great majority show that neither teachers nor supervisors are looking beyond the storage of knowledge and acquisition of mechanical skill.

### **2. Use of These Planes in Judging Instruction**

The general healthfulness and efficiency of the instruction depend upon which of these two planes it is carried on. Not all of it can be on the higher plane; nor should most of it be on the lower. That instruction is good in which occasional recitations are clearly on the higher plane, and in which most of them show intelligent attempts to place it there. That instruction is poor in which the great majority of recitations reveal not even a striving toward the higher plane.

Here, then, is the dividing line between good and poor teaching; and

in this part of our report we have endeavored to find out to which of these two types the teaching in the New York City kindergartens and elementary schools belongs.

In following this plan many details have been neglected. But it is partly because they are not of primary interest at this point. The general efficiency of the schools—the quality of the results that they are attaining—has been the question under investigation; and an answer to that question required that they be judged in the light of the objects that they were expected to accomplish.

It was obviously impossible to enumerate all of these objects, nor was it necessary. Only a few were selected, but those searching enough in character to prove the prevailing tendencies. Many of the details that influence the quality of teaching are considered at length in later chapters. But here our purpose has been to determine, in a broad way, whether the instruction is clearly related to leading phases of active life, so as to be wholesome, reasonably effective, and promising for the future; or whether it lacks this relation, so as to be radically in need of improvement.

### 3. Judging Instruction in Terms of Activity Shown by the Pupils

In applying these standards it is necessary to emphasize a distinction to which reference has already been made. One may observe the teacher, primarily, and judge the quality of her instruction mainly in terms of her own activity. In that case we consider her provision for motive, her pointedness and force of presentation, her attention to relative values, and her exercise of independence. Standards that have been proposed for judging the work of teachers, as a rule, presuppose this point of view.

But one may also judge the quality of instruction chiefly in terms of the pupils' activities. In that case we ask: What are the children doing? Are they setting up objects of their own? Are they pointed and forceful in their responses? Are they selective in regard to the facts according to values? Are they exercising initiative in their study?

While these two points of view are intimately related, since the teacher's activity must greatly influence that of the pupil, they are far from identical. Proof of this statement is found in the fact that experienced teachers will *readily* describe their own procedure in presenting a given topic to pupils, while they will usually hesitate and show embarrassment when asked to describe the procedure to be expected from pupils in studying the same topic. That signifies a consciousness on their part that pupils should do something quite different from what they themselves do, as well as an ignorance of what it should be. The explanation is that teachers, supervisors of teachers, and authors of books on teaching have been so intently observant of the teacher's procedure that they have overlooked that of the pupils. Yet the center of gravity of the school

lies in the pupil; and what he himself finally does determines the value of all the teachers' efforts. He therefore, should be the primary object of consideration, rather than the teacher, and the quality of the instruction should be judged mainly in terms of his activity.

### C. Application of These Standards

#### 1. To Particular Recitations Observed

These standards have been used, first, as tests of particular recitations, with the object, chiefly, of showing how applicable they are to the details of instruction. Then they have been applied to the mass of recitations observed by the various members of the staff of specialists in all the five boroughs of Greater New York. The following are examples of teaching judged in accordance with the standards described:

##### a. Newspaper Recitation in Grade 6

In a certain sixth grade reading class, copies of a four-page school newspaper called *Current Topics*, and dated September 15, 1911, were distributed; then the period was devoted to the reading and discussion of its articles.

Probably one-third of the children present were reading newspapers occasionally. Also most of them would soon be reading them regularly. It would have been fitting, therefore, for the teacher to have reminded them that newspaper reading was a task awaiting them all; and that many persons did it in a very poor way. Thus the reading of papers, and particularly reading them in the right way, might have become somewhat firmly fixed among their purposes.

Following this they might have considered what parts were most worthy of attention. On the four pages were fifty-three separate articles, aside from a few advertisements; and of course all were not equally valuable. Among the most important was one occupying the entire third column of the first page, telling about President Taft's prospective trip that was to consume forty-six days and cover 13,000 miles. A second one of special interest on the front page was a short paragraph on the "Danger in Ice Cream." On the third page was a valuable column about the new "Canadian Railway from Hudson Bay to the West," and on the fourth one about "Maine and Prohibition." Only three or four others ranked with these few in worth, and one of the most important factors in the proper reading consisted in the selection of these portions.

No doubt most of the children were inclined to read the whole of an article in order to determine its value; and that fact would have necessitated a consideration of the relation of the headings to what followed under them. This would have introduced the question of organization. If the substance of an article was correctly suggested in its title it would



often have been unnecessary to read further. But the children would have had to judge whether or not the titles could be relied upon in this way. In thus considering the central thought their attention would have been directed to the very essence of organization. Organization would have had to receive further attention, too, owing to the fact that there were a full dozen of the fifty-three articles that contained only five lines or less. Not enough details can usually be brought together within five lines to secure force, which is one of the principal elements in good organization. For instance, under the caption, "The Turbulent Lake," was the sole statement, "Lake Michigan has just had its greatest storm in many years." Such isolated fragments are unworthy of time. The paragraph on "Danger in Ice Cream" contained only eight lines; and while it stated that much of the ice cream sold is made of impure materials, containing filth and disease germs, there was such striking lack of detail in the way of proof that the desirable force was plainly wanting.

Finally, the teacher might have influenced the pupils themselves to take much of the initiative. For example, immediately after the determination of the task before them she might have said: "You may begin the reading at any point that you think is the best. If the others, or if I, disagree with you, we shall interrupt." Then, if any one had shown a tendency to be nonselective, or inattentive to organization, both questions and answers might have followed from pupils, the same directed to one another; and the instructor would have needed only to supplement their efforts when their own power was insufficient.

The plan, however, actually followed was very different from all this. After the papers had been distributed the teacher said, "John, begin with the left-hand column on the front page," and the first seven articles, occupying two columns, were read in order, with occasional comments and questions on the facts by the teacher. Then, seeing by the clock that a considerable part of the hour was past, and apparently observing that the article on President Taft was long, occupying a whole column, she directed the class to omit that and proceed with the next section on "The Swimming of the English Channel."

Thus this teacher was the leader throughout the period, determining the order of procedure from the start, putting practically all of the questions, and determining the correctness of all the answers. There was not only no exercise of initiative on the part of the class, but there was no selecting according to value by any one; no attention to organization by any one; and no apparent consciousness on the part of any one of any purpose beyond learning the news of the day. In brief, the recitation showed not even a striving toward the higher plane of instruction, and resulted in scrappy information.

### b. Literature Recitation in Grade 5

In a certain fifth grade in literature the class were directed to turn to the five-page fairy tale, "The Blue Light," and to begin on the third page, since the previous pages had already been read. The boy called upon to begin arose and said: "There are three words in the first sentence (of two lines) that might cause me trouble, *i. e.*, *sudden*, *dwarf*, and *midst*." Then he read the two lines aloud and sat down. The next pupil called attention to the word *soldier* in the next sentence, of less than one line, and read that amount. After him each child called upon pronounced the difficult words in his sentence and then read the same. In all, perhaps twenty words were thus named in advance, and the entire paragraph of eighteen lines was read, and then read a second time, in a period lasting from fifteen to twenty minutes. This method of reading is not uncommon in certain parts of the city.

Throughout the period the attention of all concerned seemed to be mainly directed to the proper pronunciation and enunciation of individual words. To this end the smallest possible unit of advance was adopted, *i. e.*, the single sentence, and discussion was confined to remarks about single words and phrases. Organization could scarcely have been more neglected.

If the children had been expected to read this story in school approximately as they ought to read such stories outside, which is practically the standard that we have urged, they would, first of all, have adopted a much larger unit of progress for each person—a whole paragraph, for instance, or a good part of one, if these were long. Then each pupil would have had a much better opportunity to enter into the spirit of what he read, and far more ground would have been covered.

The only suggestion of any attention to organization came in one request of the teacher, at the close of the period, for a boy to give "the idea of the paragraph." But her wording was accidental, for she accepted a detailed reproduction of the entire section without comment.

Need was not lacking, even in this small portion, of dwelling on the more important facts. For in dialogue form it showed how the manner of the soldier changed from utter discouragement and incredulity to surprise, hope, and joy. Attempts to express these different feelings were necessary both to appreciation of the story and to its proper oral rendering. But no such tendency toward selection was shown.

Finally, conversation about the leading features of so interesting a story might have been introduced, the class thereby learning to fill in between the lines by use of their imaginations, and to express judgments at their own initiative. In this way there might have been developed not only a good degree of independence in connection with their study of literature, but also a stronger desire for more reading. But there was no suggestion of any such work. Knowledge alone, and knowledge only

of minute detail, seemed to be the purpose; and the recitation was on the same plane as that on the newspaper held in a different school.

**c. A First Grade Recitation in Reading**

A first grade recitation in reading was of a very different kind. The teacher had several times sung before her class the Mother Goose Rhyme,

Diddle, diddle, dumpling, my son John  
Went to bed with his stockings on;  
One shoe off, the other shoe on,  
Diddle, diddle, dumpling, my son John.

Some of the children sang this with the teacher; then, having memorized the tune and the words, they sang it without her help.

At this point she hung a large card before them with the rhyme printed upon it. Remarking that here were the words of the song, she asked for a volunteer to point out the first words, "Diddle, diddle, dumpling, my son John." Some one else volunteered to read the second line; another the third line; and another still the fourth. After whole lines were thus read several times by the children, or were pointed to by them while some one else read them, attention was called, in a similar way, to certain phrases, such as, "my son John"; "one shoe off"; "went to bed"; etc. Finally, single words were located as they were called, or were recognized as they were located.

At the end of twenty-five or thirty minutes a large majority of the class seemed to know most of the words—a remarkable fact, since there were more than fifty children present, and this was only the second week of school.

One striking feature of the lesson was the fact that the children were learning to read something that was of interest to them, so that the words were more than mere empty forms. This plan tended plainly to establish a liking for reading, and, therefore, for the school. Thus motive was skillfully provided for.

The selection required no consideration of relative values, and the teacher made no reference to that point. But attention was plainly directed to organization. The class read the whole piece; then whole lines; then groups of words, or phrases; and only toward the end were the words dealt with individually. The method, up to this last step, was influencing the children to group words according to their relations to one another, so as to read with expression, rather than to pronounce words singly. But in this last part one line after another was read somewhat slowly, with the pointer resting upon each word, so that there was a tendency only to pronounce the words. This procedure seemed so dangerous to proper grouping of words in phrases that the teacher was later asked by the visitor how she made sure of good expression. She replied that she had been securing it partly by having the children *chant*

these rhymes in their music period. Evidently she recognized the full bearing of organization upon Beginning Reading.

Nor was provision for self-help lacking. Having memorized the rhyme the class were in position to read without help each line in order, then to recognize the main parts of which it was composed, and finally the single words. And, if they failed to call a certain phrase or word, they could recall the whole line; or, if necessary, go back to the beginning and trace down the part. In this way they were learning to recognize a form by the aid of the context, which is the least mechanical and most independent approach to new words—either form or meaning—that there is. This plan, together with the fact that the children were already sharing with the teacher the responsibility of deciding the correctness of answers, gave promise of rapid development of self-reliance in the class.

There was no question but that this recitation belonged to the higher type of instruction.

#### **d. Construction of a Chair with Blocks in Kindergarten**

Age of children, 5-6 years.

Materials used, a 3-inch cube, composed of cubes partly subdivided into halves and quarters, etc. (Fifth gift.)

Two children distributed the boxes very deftly, and when all were ready the teacher remarked that, as they had not quite finished the large chair they were making last time, they would make it again.

Boxes were opened and directions were given for lifting the top layer of blocks, so that eighteen whole cubes were left in a solid form measuring  $3 \times 3 \times 2$  inches. The teacher then asked if any one knew how to begin, and several children recalled that three cubes lying at the front should be placed in such a way as to form the back of the chair. From this point each worked independently; that is, they did not wait for each other or for directions, and it was quite evident that most of them held some former construction more or less clearly in mind.

Any deviation from the original form was checked by the teacher saying, "That is not right." "Don't you remember where we placed that block?" "The chair back was not so high," etc. There was no point at which it was apparent that new or uncompleted parts were being thought out. It was a type of lesson which, in the elementary school, would be called a review or a test lesson. Its purpose seemed to be to test ability to recall and reconstruct. Accuracy and conformity seemed the chief considerations.

After all had completed the large chair according to pattern, the teacher said: "Now, you may make some small chairs. Try to make three out of the large one without tearing it down—good workmen always do that way." This part of the lesson was somewhat freer than the first part, and some variations in form resulted. However, since

more stress was laid on the particular mode of securing these small chairs from the large one than upon getting well-proportioned, pleasing chairs, the forms on the whole were not good, and the children displayed little satisfaction in them.

As a judgment of the lesson the following facts seem true:

The children were not discovering a way of making chairs that might prove valuable to them later in their play. Nor were they making these chairs in order to put them into their doll houses, or to play with them otherwise. At least during the period there was no reference to one of these purposes, or to any other. The conclusion is drawn, therefore, that the subject matter of the recitation bore no relation to their own particular desires and plans. In doing as they did they were simply trying to satisfy the teacher.

Organization of subject matter was emphasized. But it was an organization concerned with sequence alone, the particular order of moves agreed upon by adults in securing all possible manipulation of such blocks. Indeed, it was this particular sequence of moves that made up the subject matter of the recitation. That is clearly seen when one recalls that the product wanted, *i. e.*, the chair, might have been arrived at just as truly in much briefer time had the children been allowed to take the blocks out of the box in any orderly manner and set them up in their own way.

Now, while care as to sequence may be a good thing, it was in this case the teacher, rather than the situation itself, that made it necessary, *i. e.*, it was an artificial sequence. And it was so excessively refined that if a child were to follow it closely at home in playing with his blocks, he would be giving signs that he was not well. In general, the standard for values in school is found in their values outside.

The absence of any substantial purpose of the recitation, from the children's point of view, allowed them no basis for their judging of relative values. And the teacher, in her devotion to artificial technic, had entirely lost her bearings in regard to them, too. That accounts for all neglect of proportion of parts in the chairs that were made.

Finally, the suggestion as to what should be done came from the teacher, and the sequence of steps or moves came from her. Even in the second and freer part the pupils were directed to "make *three chairs* out of the larger one," and do this "without tearing it down." While there was some freedom as to rate or speed, the recitation may be described as a dictation exercise, or a review of one, with freedom allowed in a few minor respects.

On the whole, the recitation, lacking purpose and content, was a good illustration of the extremely formal work often seen in kindergarten and primary schools.

Its sole excuse is a profound belief in its disciplinary effects; but the doctrine of formal mental discipline has been so nearly disproved by modern psychology that little worth is left to such instruction beyond

its keeping children out of mischief. That, as a principal claim, however, converts the teacher into a mere caretaker.

#### **e. Construction in Kindergarten**

Children 5 years of age. Arranging and pasting of pictures of a blacksmith at work.

The teacher recalled a visit made by the class to a blacksmith shop, and asked them if they would not like to make a picture of the blacksmith.

"What ought the picture to show?" she said. Different things were mentioned and some of the movements of the smith at work were illustrated by the children. Then the teacher told them they could plan a picture showing him bending over or upright, with hammer in hand at the anvil, or in front of the forge. Parts previously cut out by the teacher were adapted to different poses, and the children chose what they would represent. Then they arranged the parts according to their own ideas, teacher and children occasionally commenting. Children asked questions and asked advice as to placing, and the replies sometimes came from the teacher and sometimes from other children. A good deal of recalling and of mental picturing was necessary.

The task of producing a picture of a smith at work that expresses an idea that is accurate and pleasing in both selection and arrangement is one that is worth while. Its accomplishment requires observation, thinking, and taste of a sort often called for throughout life, and intimately related to children's needs and desires. Motivation is, therefore, admirably provided for here. In the parts of both teacher and children there had to be weighing of values, with reference to the idea to be expressed and also to its method of representation.

The former must select the most prominent and characteristic things connected with the blacksmith in order to cut out the parts for the picture. Then the children, under her leadership, had to distinguish between essentials and nonessentials, so as finally to center upon some of the same things. Likewise, in deciding upon desirable arrangement, distinction and selection were again necessary.

Further, the "composition" called for the putting of things together in right relation. The picture was not to show merely a list of objects that the blacksmith used, nor any other mere list. It had to have a central idea, if possible, with details grouped about it, so as to form a unit. Attention to organization was, therefore, necessary throughout the period.

Finally, although the teacher assumed much initiative in originally selecting and cutting out the parts, its exercise only allowed her to be the better prepared to lead the pupils to exercise their own power in that direction. And not only did they select and arrange, but in her presence they corrected, and made suggestions to, their mates. Usually, too, when

she corrected she did not have to exercise authority by declaring, "That is not right," or "That piece does not belong there"; but she could ask, "Was it so in the shop?" or "Could the smith work in that way?" Thus while limited by the facts they were free to express their own individuality, a fact that the great variety of pictures produced quite conclusively proved.

This recitation was almost ideal, forming a striking contrast to the one preceding in every respect.

#### f. A Lesson in Shop Work

Grade, 7B; 28 boys. Project, a book rack with a hidden mortise joint.

The boys at the benches stood at attention. Monitors distributed materials. They were vigorous and exact in their work.

Teacher: "What is the next thing to do on our book racks? Hands up."

John: "Cut down the end parts to put into the mortises we made last time."

Teacher: "What do we call these end parts?" A few hands.

Isaac: "Tenons."

Teacher: "A tenon. Now this is the way to begin." The teacher makes a quick sketch of the board used as the bottom of the rack. He talks as he sketches, asking the boys to name the various parts as he sketches—working edge, dimensions, etc. He tells about taking the try-square and pencil, squaring the ends, taking the ruler and measuring one-half inch in from the end on the working edge, then down one inch from the working edge on the surfaced side of the board; then about applying the try-square, starting from the working edge and making the line that marks the inner edge of the tenon; then about setting the thumb gage at half inch, and marking the upper and lower edges of the tenon. As the teacher talks and refers to his sketch, the boys take the sheet of drawing paper already containing the previous portions of the instruction given and make a similar sketch and take down the chief items of the dictation.

When the problem is thus set forth through the sketch, the teacher takes his own book-rack materials (he makes a project, as a demonstration, step by step, before the class in each case) and, placing the board for the bottom on the bench, squares up the ends as he has instructed. Before taking each step he asks the boys to tell him what to do, requiring that they name each part technically in speaking of it, and each tool as it is taken up. If there is doubt or ambiguity in their statements, he asks them to come up to show him what they mean. Thus, talking and working, he does just what he expects them to do. On finishing this, which took 12 minutes, he directs them to go to work. He now moves about among them, calling especial attention, where needed, to little

points in handling tools or materials. One rather common defect was the failure to place boards properly in the vise. Another, common to most of the pupils, was the squaring. So he interrupted thus:

Teacher: "Everybody stop work. Where do we always begin in squaring?"

Boy: "On the working edge."

Teacher: "Of course. Now most of you are forgetting about that." He then takes the board of one boy and, applying the try-square, starts on the working edge, goes around the board, coming back to the working edge, telling of the order of steps as he goes, insisting that when he gets around the board the lines must meet. The boys watch attentively. "Now does everybody understand? Then go to work." He continues among them, often telling what to do, frequently asking, "What did we say about that?" or, "What do your notes say about that?" and often taking the materials and tools and showing what to do. Reasons for doing things are scarcely at all considered.

A stop is called to show once more just how the gage is used in marking out the tenon. Work is resumed after two minutes of talk and demonstration.

A stop is also made when the parts removed to make the tenon are sawed out; and a demonstration is given, showing how to saw squarely across the board to make the edges of the tenon square when the chisel is applied to remove the part. Some boys are careless, sawing too fast. Teacher: "It never pays to be in too much of a hurry in sawing or doing anything else in wood work. Here is a boy who has been in so much of a hurry that he has sawed too far (showing board). He will have to square up his piece, cut it off, and begin all over again. Don't forget, in sawing a board in two, to use the bench hook; in cutting out the tenon parts use the vise. Now go to work."

Boys frequently go to the teacher to ask a question. The question is usually *what* to do, or *how* to do some definite thing. The teacher often refers back to the demonstration, asking, "What did we say to do?" or, "How did we do it?" or, "Didn't you get that in your notes?" But he always tells or shows the boy if he can't recall.

At the sound of the bell work stops where it is, to be resumed next time. Most boys have about finished the step assigned. Two did finish before the end of the period. These were put to work as helpers for the slower ones, telling them what to do, but not doing it for them.

The lesson can be considered as to motivation and initiative only in relationship to the making of the project as a whole, which probably occupied six or seven lessons. Except as the activity involved is in itself pleasurable to most boys, and that the project *might* be used, there is no evidence whatever of motivation for the project. The following facts show how very little opportunity there is for either motivation or initiative:

- a. The book racks are *prescribed* for all by the teacher.



- b. They are all uniform in materials, design, and finish.
- c. There is no adaptation of the project in any particular to any *specific* place or purpose.
- d. The method of instruction is *dictation*. Questions of what to do, or how to do it, do not have to be thought of or asked. If the boys wait until the appropriate time, they are both *told* and *shown* every step.

The organization of the material in the lessons on the project is based purely upon the technical sequence of processes involved in construction. So far as observed, the pupil is not made conscious of this organization at all. Apparently the organization to the boy is simply this: "What do we do first in making this book rack?" This done, it is, "What do we do next?" repeated step by step, until the project is finished. The boys' notes were evidence of this. They added the new steps, as they were given from day to day. They had not organized the problem as a whole and seen its main parts in their relationships. There were no summaries; and there was no grouping of facts into "points" in the lesson.

The values stressed in the class were:

- a. Accuracy in technical processes.
- b. Correctness in the use of tools.
- c. Excellence of finished products.
- d. Speed in securing results.

Attention to detail is the necessary factor in gaining these ends. These details all stand on about the same level. No broad principles are offered and no attention is called to certain most crucial parts of the undertakings; but there is simply a direct application of detailed instructions, making for immediate technical excellence. There is no attention whatever given to the body of thought included in the related fields of industry, geography, or civic and social life, which should give these projects their appropriate evaluation in the elementary school.

The recitation was distinctly on a low plane, inasmuch as it provided for motive in only the most general way; paid almost no attention to individuality and initiative; showed no tendency to bring the multitude of ideas into a few large groups, and ignored relative values, or values in general, entirely. Possibly it may seem good to some persons; but it was good only in the sense that it accomplished several of the minor purposes of instruction—while endangering those of higher value.

#### g. A Lesson in Drawing

Grade, 8A; 37 boys. Problem, working drawing for a piece of bent gas pipe.

Teacher: "Get out your drawing materials and mount a piece of drawing paper with thumb tacks. To-day we shall make a working drawing for a piece of gas pipe bent like this:" (draws the form on the

blackboard). "Its total length is to be 8 inches and the two parts connected at the turn 2 inches apart. It is one-inch pipe. What will be the total width of the piece?" A boy answers, "Four inches."

Teacher: "Our scale is to be  $\frac{1}{2}$ . How long will the drawing be?" "Four inches." "How wide?" "Two inches."

Teacher: "Now, first, rule your margin lines. How far from the edge of your paper will these be?" "One-half inch." "Yes. Mark off the distance with your rulers; then be sure to use your T square and triangle to make the lines. Then make your 'thumb nail' sketch in the upper left hand corner."

The boys proceed as directed, knowing what to do from previous experience. Meantime, the teacher makes a diagram on the blackboard representing a sheet of paper with margin lines. She then goes about among the boys, insisting on the correct use of the T square and triangle. Her method is simply telling them what to do. The boys find the use of the triangle, for making vertical lines, rather difficult. When the margin lines are all made, and the thumb nail sketch is finished, the teacher then asks them what to do first.

Boy: "Make the construction lines." "Yes. How shall we make them?" "Very light." "Yes. Place the first horizontal line two inches from the top; where will the bottom line be?" Boy: "Four inches." "Is that right?" Another boy: "No. Two inches." "Why?" "The pipe is four inches and the scale  $\frac{1}{2}$ . That makes the drawing only 2 inches." Teacher: "Right. Now put in the bottom line." The teacher makes her own drawing on the blackboard as the instructions are agreed upon. She talks to the boys about the dimensions and the lines to be used, developing her sketch as she proceeds. Questions of *why* are given some consideration. Boys are asked to come to the board, at times, to show what they mean by the use of her drawing. When her own drawing is finished, she tells them to begin work on their own. She moves about among them, helping them to get dimensions right and to use properly the T square and triangle. In getting dimensions, she asks questions leading them to see answers themselves.

When the construction lines are all in, the teacher stops them all and has a boy come to the blackboard to put the sketch of the pipe within the lines. This is all quite simple and is easily finished. She stops him, when his first line is made no heavier than the construction line, to ask him, "What kind of a line should you use?" He replies at once, "A heavy line," and makes heavy lines. The boys are then told to put in their own sketches.

Another view of the pipe is then taken up. The teacher bends a piece of wire, which happens to be on the desk, into the desired shape and holds it up with one end toward the boys. They are asked what they see with the pipe held so, and then how to represent it. Construction lines are made, using the original horizontal lines projected. The

teacher makes the whole sketch on the board, and the boys then follow with theirs. Before all have quite finished the bell rings.

With this development of what to do, and how to do it, and with the copy on the board before them, it is almost impossible for the boys to make a mistake. The papers show good results.

The project is purely formal. There is no connection whatever made between the drawing and the execution of the problem in the shop.

Not a single healthy provision for motive can be found in this lesson. This is shown by the following facts:

- a. The teacher *announced* the subject of the drawing.
- b. The drawing was not to be used as a basis for construction.
- c. The particular subject had no direct relationship to anything that had gone before in the drawing, or construction work.
- d. There was no connection pointed out between this problem and the industrial activities which it illustrates. It was an isolated unit of drawing without purpose to these boys.

Likewise, there was no provision for the exercise of initiative:

- a. The problem as a whole was *prescribed*.
- b. The positions and dimensions were *prescribed*.
- c. The procedure was definitely *uniform*.
- d. The method was *dictation*.

In organization, the lesson represented a mere sequence of steps in the process of constructing the drawing. These included, roughly:

- a. Stating the aim or problem by the teacher.
- b. Ruling the drawing paper for the margin lines.
- c. Making the "thumb nail" sketch.
- d. Drawing construction lines.
- e. Drawing in the object in heavy lines.
- f. Indicating dimensions on the finished drawing.

This is typical of a plan which might apply as a sequence in procedure for any simple working drawing. As a means of getting an immediate drawing, well done technically by dictation, the results were excellent.

As to relative values, the features emphasized were:

- a. Accuracy in form and dimensions.
- b. Correctness in the use of drawing instruments.
- c. A knowledge of the meaning of the forms and dimensions used in the drawing.

Questions other than these did not arise. The relation of this problem to the industrial world, the values within the field of draftsmanship of the ends stressed, the making of blue prints as used by the industries,

and all other questions not included in getting as much finished work as possible on the paper within the period were omitted entirely.

Again, so far as the lesson itself gives any evidence, it lacks the elements that place instruction on the higher plane.

If the teacher had aimed to introduce the pupils into the field of mechanical drawing in a way that would make them interested in it, and, perhaps, inclined both to study the excellence of such drawings, as seen in advertisements, and to produce others themselves in connection with their own needs, she would have selected some task that promised to appeal to them. And she would have tried to find some plan that could be used as a basis for actual construction later.

If she had appreciated the worth of individuality and initiative, she might have allowed several different objects to be drawn; or, if the class were not ready for that, she might have allowed one object to vary in minor details, according to the abilities and inclinations of different pupils. Also, she would have avoided dictation and uniformity of procedure, so that the pupils might feel and exercise their self-reliance.

If she had understood the value of organization the task would have been plainly one of a group having a common purpose; and related knowledge acquired in previous periods, that would have proved helpful here, might have been recalled by the pupils, with their attention especially directed to its ordering and perspective. Also, the steps in the performance of the new task might have been separately named and described.

Finally, if the weighing of values had held high rank in her mind, she might not have neglected accuracy and correctness, *i. e.*, technique; but she would frequently have directed their attention beyond such details, to the blue prints and later construction, in a way that would have kept the *need* of accuracy and correctness before them, while giving them also some standards for judging the relative values of all these items.

It is the entire absence of these broader ideas, and of the spirit that goes with them; the absence of all tendency to connect up knowledge and ability with the life that gives them worth, that places this recitation, like the former one, on a low plane.

A rough parallel to this kind of instruction would be found in literature, if children were brought only to the point of pronouncing and defining each word correctly, without reference to the broader ideas in the selections or to a taste for the field. Again, it would be paralleled in composition, if children learned to write each sentence correctly, without either acquiring a knowledge of the principles of composition, or reaching a point where they have any ideas to express, or feeling any interest in the method of presenting thoughts to other persons.

#### **h. Arithmetic Lesson in Grade 1A**

In a certain 1A grade the arithmetic lesson consisted of a drill on the addition table of 1's. The teacher gave the addends of the table in order, beginning with 1 and 1; after each combination she called upon some child to give the sum. She had not gone far before a pupil failed to give the proper answer. The teacher said, "No wonder! You can't think when you are not sitting up straight." The second failure brought forth the remark, "You can't think when you have your hand in your pocket."

There was no problem before the pupils that required solution. Even the motive that would have been present had the work presented any new difficulties was lacking. There was no recognition of values, because the instruction was unrelated to any specific things of value in their lives. There was organization, in the sense that the facts desired were grouped in tables, and the table of 1's was to be entirely or largely mastered before the table of 2's was undertaken. But that is the logical organization of the adult, and just the kind that is repellent to children. No initiative was exercised by the children.

The entire period was characterized by a lack of interest that could have no other effect than to make the children dislike the subject.

In considering how our standards might be met in first grade arithmetic, we see the need of abandoning such systematic instruction, and of approaching number as it is actually used by children; for example, in connection with scoring in games, and with the weighing and measuring of actual objects, confining the combinations to small numbers. In that case, the table of 1's and 2's would be combined with some of the others, thereby securing some variety in the study, and showing its naturalness. Motive would thus be provided for, and with it would come some attention to relative values and some possibility of initiative. Organization of these facts is least needed. Since they are finally to be used entirely independently of one another anyway, there is no need whatever of grouping them into a table, except as that grouping may be a minor means of introducing variety. But drill upon such a table, over and over, is the extreme of abstractness. The recitation, as held, is a good illustration of the kind of instruction that stultifies children while giving them knowledge.

#### **i. Arithmetic Lesson in the Grade 8B**

Forty girls.

The subject for this lesson was a review of bank discount. The class had studied bank discount in the 7A grade, and in the 8A grade they had had business forms, including promissory notes, payable at banks, written and discounted.

The lesson began with the assignment of circles as the topic for the

next day. It was required to find the diameter when the circumference was given; also, the circumference when the diameter was given, and the area. Then the class was asked, "What is a promissory note?" Several pupils replied by repeating a more or less formal definition of a note. Others were asked to repeat the form of interest-bearing and non-interest-bearing notes. Following this, there were brief references to certain terms employed. After that, they were supplied with books and told to work problems 9, 10, 11, and 12 on a given page. The problems were statements of dates and amounts, all involving the same principles.

The girls worked with earnestness, and throughout the lesson there was a healthy spirit of sympathy between teacher and class. They had been told to check up their results by the answers given in the back part of the book. Very soon there was a group of them, waiting their turn to receive assistance from the teacher. Some of those who had a problem correct were asked to help others, and the period closed while this work was in progress.

What were the educational values of the recitation? As it was conducted, certain isolated facts that might serve for examination at the end of the term, and that might, possibly, some time prove useful, were presented. In reviewing them the motive of the pupils was ignored, memory being mainly appealed to; and, during the forty minutes, no pupil expressed any opinion or took any initiative in a way worth mentioning. The value was slight, to say the least.

What might have been accomplished? The pupils being girls, they would probably forget how to solve problems in bank discount long before wanting to make any practical use of it. There could hardly be much purpose, for them, in the review of the arithmetical processes alone.

But the function of a bank as a public institution, particularly some of the advantages in which the public are directly concerned, and which can be easily comprehended, might make this a topic of much general worth, and hence of interest to these girls. That might involve the conditions under which a bank loans money, the security necessary, the rules for interest, and the need of promptness in payments. It might, also, involve comparison of the advantages of borrowing money at a bank with the advantages of borrowing it elsewhere. In brief, the value of the topic is found in its various relations to ordinary persons. If it has such relations—numerous and close—it will appeal to the motives of young people, will require judgment of values as well as organization of facts, and will allow the exercise of initiative. The central idea would still be quantity; but arithmetical processes themselves would be subordinated to questions more worth study.

There are certainly many other topics in arithmetic far more valuable for children of this age than bank discount; so many that this topic should receive no attention in the elementary school.

### **j. A Series of Lessons in Music**

The following statements are the result of ten lessons, ranging from the first grade through 7B, in the same school, and all given by a supervisor of music. As the same plan underlies all the lessons, we shall describe it, giving illustrations from different grades.

#### **a. First Kind of Exercise**

The first work consisted of exercises in breathing and tone production. The children in the first grade were told to take in a full breath and sing a pleasing tone while letting out the breath, imitating a tone given by the teacher. In the upper grades similar exercises were carried on by simply saying, "Inhale and exhale," the teacher singing the model tone again. The pitch of these tones was high and of good quality, and it produced a pleasing effect. Sometimes the tone was sustained, sometimes a scale was sung down and up. In the upper grades changes as to various vowel tones were included.

#### **b. Second Kind of Exercise**

After the tone exercise the children took their seats, and technical questions with reference to pitch and rhythm were introduced. For questions in 1B children were drilled on the numbers 1, 6, 4 downward from the upper octave. In the second grade the teacher spent the time attempting to have the children appreciate two beats to the half note. In the third grade notes and rests were put on the blackboard. Children also sung the Mother Goose words to various dictations at the board, thus showing some independence of the syllable names. In the fifth grade the nature of the slur and tie was taken up. In other grades sharp four, flat seven, and divided beat were considered. This work was done at the blackboard.

#### **c. Third Kind of Exercise**

This was followed in the grades from the third on by a third type, which consisted in the use of the book, tests being given to show the power of the children to sing by sight.

#### **d. Fourth Kind of Exercise**

A fourth type of work was singing some song that had already been learned. Occasionally this fourth step would follow immediately after the vocal exercise.

The approach of the teacher to her pupils was very friendly and happy. The order and attention were all that could be desired, from a formal point of view. The instruction being given by the supervisor, carefully prepared plans were furnished by her to each teacher, in-

dicating the successive steps, whether in the tone study of the first, the rhythm or pitch work of the second, the sight reading of the third, or the song singing of the fourth.

### **Organization**

While each type of exercise was, no doubt, logically related to the same type held on the preceding day, in a given class, there was little sign of relationship of the four types to one another within any given lesson. For example, the voice exercises were independent of the study of pitch and rhythm; the latter study was unrelated to the sight reading in the book; and all three lacked connection with the song singing. Thus each lesson presented four separate strata, and a lesson of twelve minutes was controlled by four distinct aims rather than by one.

### **Provision for Motive**

Ostensibly, the object of all the exercises was to learn to sing, but, while the relation of each task to this object might have been clear to the teacher of music, it could hardly be appreciated by the pupils.

If the tone and vowel exercises had been followed immediately by the song, so that the children could have realized that the deep breathing and proper pronunciation of the vowel affected the way the tone sounded, the purpose of what was done would have been obvious, and the children could have coöperated toward accomplishing the end. Or if the technical drill on rhythm and pitch had dealt with the specific difficulties of the sight-singing exercise that was to follow it; or if the order of these two had been reversed; or if a song had been sung and its difficult parts had been taken for special practice, in order to get better rendering; then the notation problems and other technical work could have been mastered under the influence of a normal motive.

By failing to relate the various forms of practice to the ends they served in better song singing, the plan that was followed cut out all possibility of having the pupils—except the most musical ones—realize any purpose in what they were doing, except when they were actually singing songs. Here the pleasurable end of the song justified the activity.

### **Consideration of Values**

This omission of purpose for the pupils made it also impossible to exercise their judgment with reference to the success of their efforts. Each exercise was peculiarly arbitrary. For instance, nowhere in the ten lessons was there any intimation that the reason the high tones were sung first was to enable the children to bring the qualities of these pleasant tones into the lower part of the voice; or, that the vocal exercise was a means for them to produce better low tones. The result was that in



the song singing the lower tones had the chest qualities that the vocal exercise was peculiarly adapted to counteract. If the pupils had realized the relation between the vocal exercises and the low tones desired they would not only have had a purpose for their work in these exercises, but there would have been a basis for judgment, on their part, of the kind of tone they were producing in their songs.

The same principle holds in the relation of the technical exercises to the purpose they served in the more adequate reading of the songs, or exercises. For instance, if the necessity for holding a tone two beats grew out of the fact that the song required it, and that it did not sound as well without it, a purpose would have been established for learning to hold a tone two beats long when necessary. But to practice two beats, as an abstract exercise in a series of mathematical tonal relationships—while it might eventually develop a technic that could be applied—almost entirely destroys the advantage that would come from the awakening of the pupil's own thought in relation to what is being done.

#### **Provision for Initiative**

On the few occasions that the children were asked to volunteer any preference, especially in reference to songs that they wished to sing, they showed interest; and they would probably have responded freely, if more development instruction had been undertaken. But such spontaneity was prevented by the fact that most of the time was devoted to independent technical exercises that made no appeal to their imagination or preference.

#### **Summary**

The group of lessons was admirably conducted, so far as technique alone is concerned. But they were poorly organized, in that they had been planned with reference to the purposes of the adult only, and left the pupil in the dark as to the object of the various activities required of him. This lack of motive made it impossible to appeal to his judgment, for he could have estimated the quality of his own performances only in the light of the objects that they were expected to accomplish. Finally, the pupil, not being an intelligent coöperator in the process, little spontaneity was secured.

### **k. Physical Training—Typical Lessons**

#### **a. Grade II—Boys**

Class stand. Open windows.

Arm stretching—8.

Marching.

Breathing—4.

Knee bending—16.

Head turning—8.

Class sit. Close windows.

The teacher, with syllabus in hand, directed the class in a mechanical, lifeless manner. During the marching she paused between the counts to call out, "Chest high—Keep your shoulders down—Push your hips back." These coördinations being beyond the voluntary control of a small child, the results were exaggerated, faulty, and unnatural positions. As classes were passing through a hall a principal's attention was called to these positions. His reply was, "Thank goodness, the children can't hold them long."

During this period the boys' eyes were fastened upon the teacher. They stood at "attention" for the entire period. Their faces did not radiate a suggestion of interest in the things they were doing. There was a feeling of severe effort in the room. The teacher's manner and voice intensified this. When the children sat there was a sigh of relief from both teacher and pupils. Asked if the children enjoyed the gymnastic work, the teacher said, "Not as much as they do games, but they have to have it."

#### **b. Grade IV—Girls**

Class stand.

Arm stretching sideways—16.

Breathing—4.

Charging forward—8.

Head turning—16.

Trunk bending—16.

During the time this lesson was being given the children were rigid, quiet and unnatural. Not once did a head turn unless at the teacher's command. The hands were held close to their sides, and not an eye was turned away from the teacher. The rhythm was indicated by the snapping of the teacher's fingers, and not once during the period did she vary the rhythm. The commands were given in a cold, harsh voice, and the teacher took no part in the exercises. She stood apart from the class and read the exercises from the syllabus. At the command, "Class—sit," the little girls noiselessly sat, took their books, the windows were closed, and the day's work went on.

When the teacher was questioned regarding the relative amount of time given to games, she explained, with emphasis, that she had given her last game in the classroom. The time was when she attempted this, but experience had convinced her of the folly of such procedure. Her aim is to make the children feel that when they enter the classroom they are there for work. She believes that work and play form a poor com-

bination in the classroom. Now, they have gymnastic work each day in the classroom, and the children are allowed to play in the court a few minutes during the afternoon recess. They are impressed with the fact that this period is in no way related to their classroom work.

**c. Grade VIII—Boys**

A relay race had been planned for this class. Hearing the good news the boys commented upon the situation as they entered the room. By way of explaining this disorder the teacher said that he could always tell when the boys were expecting a game. But the enthusiasm waned, somewhat, when they were put through a ten-minute drill with iron dumbbells, preceding the race. The exercises were:

Marching—Facings.  
Charging with trunk twisting.  
Trunk bending.

These exercises are typical of those usually given. The lesson was carried forward with military precision, and with many indications of fatigue. When the command was given to "place bells," little time was lost and the spirits immediately revived.

The relay race followed, and was enjoyed by all. It was characterized by a spirit of good will and wholesome competition.

This instruction—so far as the first two exercises are concerned—not only fails to meet the standards set up, but, in very important respects, it directly opposes them.

There is much possibility in the games; but they are so slighted, in the amount of time devoted to them, as well as in other respects, that they are treated more as a means of recreation than as an instrument of education, capable of accomplishing the highest aims of teaching by the use of maximum skill.

**1. Hygiene—Typical Lessons**

Grade VI, boys; grade VII, boys; other lessons also.

Above the fifth grade, the work in hygiene in this particular school is carried on according to the departmental plan, one twenty-minute period per week being given to this work.

For the lesson observed, the text used was Eadie's "Physiology and Hygiene for Children." Each boy was given a book. As the teacher called the names, the boys stood, and, with much difficulty, read the formal, technical text-book discussion of the following topics:

Drinks which contain alcohol.  
What is alcohol?  
How malt liquors are made.

How distilled liquors are made.

What alcohol is like.

Is alcoholic liquor a food?

During the lesson a few questions were asked. Among them, "What is alcohol?" One boy replied, "Alcohol is a poison medicine." After he had read "How malt and distilled liquors are made," he seemed to have gained no clearer views on the subject.

The reading proceeded in a monotonous way for twenty minutes. In that time most of the boys had read at least one paragraph aloud, and had struggled manfully with carbon dioxide, ferment, yeast, vapor distillation, and other words equally suggestive.

Throughout the lesson there was felt the influence of law-required instruction. The subject matter had been chosen, not because it seemed related to the needs and purposes of the children concerned, but because conformity to law had made the use of such material necessary. The teaching was done in obedience to law, in a perfunctory manner, and without interest on the part of either teacher or pupils.

The argument is advanced that such instruction is justified by the fact that it is required by law. The law does require that instruction in the effects of alcoholic drinks and narcotics be given, below the second year of high school and above the third year of the elementary school, "with suitable text-books in the hands of all pupils, for not less than three lessons a week for ten or more weeks, or the equivalent of the same, in each year." The law does not state, however, that the work shall be confined to one text-book; nor that it shall be given in a mechanical way, entirely unrelated to life and to the other subjects in the Course of Study; nor that the thirty lessons shall be given consecutively. We believe that, if these required lessons were planned as they might be, and wisely distributed, the required number could be given, and the required subject matter discussed, without placing undue emphasis on the phases of this subject that are not only uninteresting, but unwholesome.

Discussion of the organization of subject matter would involve only a criticism of the text-book used, for there was not the slightest deviation from the text-book arrangement. No topic was given more emphasis than another. If the teacher felt that the making of malt liquors should be given more stress than the making of distilled liquor, his manner did not indicate it. At the close of the period he was asked his opinion regarding the value of such instruction. He replied, "Worthless."

In five other lessons observed in this building, two 7A grades considered the subject of bones and digestion; two 7B grades, the heart and respiration; and the 8A class, alcoholic drinks and tobacco. All of these recitations were conducted in the same manner. The boys read, and the teacher interrupted with occasional questions bearing directly upon the reading, and involving text-book answers.

During a lesson on the heart and circulation, the boys struggled with the size, position, shape, and structure of the heart, the blood vessels, the composition of the blood, and the process of circulation. After they had read the paragraph describing the red and white corpuscles, the teacher asked, "What are the red corpuscles for?" The answer came promptly, "The red corpuscles are to fight the white ones." Although the boys had their books open before them and had only a moment before read about the work of the red corpuscles, few realized that the answer given did not conform to the teaching of the text.

The lesson with the 7A boys included the following topics:

- Uses of the bones.
- Form of the bones.
- Structure of the bones.
- Materials of which bones are made.
- Growth and repair of bones.
- Bones of the head.

As in the other recitations, the boys read "by turn." Answers to the questions asked indicated that the pupils were giving little thought to the subject matter. They were simply pronouncing the words which they saw on the pages of the text. When the teacher was questioned regarding the value of such material, he stated, without hesitation, that it had little practical worth; but that he was giving it in order to conform to the prescribed Course of Study. The syllabus for the 7A grade, while dealing mainly with the anatomical structure of bones, etc., does, however, suggest some few practical applications of the subject matter studied, namely, round shoulders, spinal curvature, and adjustment of desks. The teacher's criticism may have been just; the material inappropriate; nevertheless, he had failed to make use of the few vital points of contact with the child's life which the syllabus affords.

The criticism passed upon the work in hygiene in this school may seem severe; yet it is typical of the work done in many of the schools. In general, it fails to meet any one of the standards we have been using.

## **2. Application of These Standards to Kindergarten and Elementary Instruction Throughout New York City**

### **Method of Judging Reliability of Conclusions**

The analysis of the recitations presented in the preceding pages illustrates how instruction can be judged by use of the standards proposed. Now we come to the conclusions reached touching the quality of instruction throughout Greater New York, as judged by these standards.

These conclusions are the immediate result of facts gained at first hand. Kindergartens and schools, taken at random, have been extensively visited, and teachers have been personally interviewed, in order

that instruction in the classroom, and the attitude of the teachers themselves, might be directly observed.

But it was realized that the quantity of data secured in this way would necessarily form an insufficient basis for conclusions in regard to the work of 15,000 teachers. It would require a much larger number of expert observers, and a far longer period of time, than the plan of investigation allowed, to collect enough facts, by direct observation, on which to base judgments that could be trusted.

The conclusions thus reached needed, therefore, thorough verification. And it was not difficult to discover valuable means for doing this.

It was recalled that the original ability of the teacher is only one of the things that determine the quality of classroom instruction. The abilities of her superior officers are, likewise, important factors. The curriculum is a great aid or an obstacle to good results, according to the insight shown in selecting its subject matter; the syllabi, which interpret this curriculum and offer suggestions on method, are a guide, and a source of inspiration or depression to teachers, according to the definiteness of statement, and the breadth of view that they evince; and, finally, the supervision by principals and superintendents tends to produce an enthusiasm that will manifest itself outside of school in extra preparation, and in the class by alertness to each pupil's condition; or it tends in the opposite direction. These other influences, taken together, must very greatly affect the atmosphere that surrounds the teacher. Instruction can hardly be good without their positive support; and it is not likely to be poor, if they are doing their work fairly well.

An extensive study of these factors, therefore, has furnished the data necessary for verifying the conclusions reached by direct observation. If these factors are found—owing to the quality and quantity of their influence—to oppose the conclusions previously reached, then those conclusions are rightly subject to serious question. If, on the other hand, they plainly verify those conclusions; if, indeed, their influence is so potent, that it would seem sufficient to produce the very conditions that have led to the conclusions—then the latter may be considered to be reliable.

These other factors, therefore, are related to the statements here made, as proofs; and judgment as to the reliability of these statements must be waived by the reader until these proofs, that follow in later chapters, have been carefully examined.

### **Quality of Instruction in the Kindergarten**

#### **a. Inculcation of Purposes in Children**

Specific and childlike aims tending to call out a high degree of effort are very prominent in the kindergartens. A certain form is folded to serve as the mount for mother's valentine, to be presented at the valen-

tine party of the Mothers' Meeting; a bag is folded and sewed, to be used in the postman's game; little houses are carefully cut and pasted for the group work in which a city street is represented; blocks are evenly laid by another group of children to represent the sidewalk of that same street; it is suggested that a certain lullaby would be nice to sing to the baby at home, and the children put new sweetness and interest into the singing.

These detailed purposes play directly into the broader aims that are plainly in evidence in the kindergarten. Those are: a love of stories, of plants and animals, of games, of objects of beauty, and of constructive work—a love that finds expression in little deeds, such as those named, and that leads to more far-reaching hopes and plans.

#### **b. Attention to Organization**

Most kindergartners endeavor to organize the more or less random and instinctive activities of even their youngest children. At the kindergarten age the organization of ideas takes place largely through the organization of activity, the ordered act being considered the very best evidence of ordered thought. A representative play is worked out bit by bit, until a reasonably finished whole results; a simple little dance is created out of selected movements; a piece of group building is undertaken wherein each child's work contributes to the whole, but must occupy its own subordinate position; all such efforts call for organization in the same sense as does the high school student's essay. The children are less conscious of the process, but they profit by it just as truly. One seldom visits a kindergarten without observing that the kindergartner herself is carrying the idea of organization constantly in mind; and, without observing, also, that the children are doing the same thing, to some extent, in their attention to sequence, to the inter-relation of facts, and to grouping.

Indeed, one of the most serious faults of the kindergarten is found in its over-devotion to sequence, particularly to the logical sequence of the adult, which is probably even more a source of torment to some children in the kindergarten than to any in the elementary school. The kindergarten lesson, described on page 22, is an illustration.

But, while there are such excesses here and there, we are convinced that on the whole an emphasis is placed upon organization of ideas in the kindergarten that accords roughly with the worth placed upon it in life outside.

#### **c. Attention to Relative Values—Imagination and Reasoning**

The kindergartner makes noticeable provision for relative values. Emotional response, appreciation, preservation of an inquiring attitude of mind, socialized behavior, seem to be regarded in the regular instruc-

tion as of, at least, equal importance with knowledge. The general viewpoint of the kindergartner is that whatever is done in the kindergarten is of value to the extent that it counts, or functions, in life. Hence, the tendency to weigh worth is common here, with both teachers and children.

Again, however, a defect is to be noted, namely, that devotion to technique, to precision, and exact imitation is now and then extreme on the teacher's part, tending to influence the children to forget all about the real worth of things. This is true particularly in the use of materials, and is not representative of the work as a whole.

#### **d. Provision for Exercise of Initiative and Independence by Children**

Kindergarten teachers have an enviable opportunity for encouraging the exercise of initiative and individuality of children, because uniformity is not demanded. Without a fixed program and without rigid requirements of accomplishment, there is every incentive for teachers to allow pupils to do original and creative work; and this opportunity is not lost. It is common for children to set up aims, to organize their activities, to suggest subject matter or experience that forms the basis for their play and work, to choose songs, stories, games, and materials, and to lead in many of the undertakings.

While this seems to be the dominant tendency, it is also evident that in quite a number of the kindergartens dictation exercises and ready made play, that require complete submission on the part of the pupil, are so prominent that they directly oppose self-expression and self-reliance.

On the whole, there are two very distinct currents observable in the kindergartens. The one represents a slavish devotion to the adult point of view in the selection of subject matter, and to adult logic in its presentation, resulting in rigid organization, ignoring of relative values, and neglect of the child himself. The other shows the opposite tendencies. Which of these two shall finally prevail is a matter of grave concern, requiring the constant watchfulness of citizens especially interested in this field.

But, at present, we feel little hesitation in saying that the kindergarten, as a whole, meets the test of the four standards set up in a satisfactory manner; and that, therefore, the instruction there rests on the higher plane, i. e., it is good at present, and promising for the future.



### Quality of Instruction in the Elementary Schools

#### a. The New York City Working Theory for the Elementary Schools

Back of the multitude of ideas and practices related to the elementary schools there are four convictions that are remarkably prevalent. One pertains to the necessity of uniformity, and the thought runs thus:

There are approximately 14,000 teachers in the elementary schools. That is an enormous number. All reports in regard to them, all communications to them, must be systematized. All plans to influence them must be made for the mass.

There are approximately 650,000 children in the elementary schools, sometimes over 4,000 collecting in a single building. The absolute necessity of mass action in fire drills is self-evident; its reasonableness in filling and emptying buildings, under ordinary circumstances, as well as its need in the external handling of the large classes, is likewise evident.

Turning to the instruction itself—if teachers must be rated for advancement, as they must, instruction must be standardized; if the children must be rated in their attainments, as they must, the results of instruction must also be standardized; hence, one curriculum, one time allotment for studies, one method, for all the schools; that, so far as possible, is a necessity! The degree to which standardization is established, and mass action secured, is one of the measures of efficiency.

The second conviction pertains to the essence of the course of study. A curriculum may and, no doubt, should contain many things, of many kinds; but its very core is found in those facts and those kinds of skill that can become automatically usable.

The third conviction pertains to the factor in scholarship that is most worthy of emphasis. Many things are necessary to proper study, but the most desirable element is accuracy in details.

The fourth conviction pertains to the time when the pupil may be expected to use what he learns in school. Of course, some things that are learned, such, for example, as writing, reading, a few facts in geography and in shop work, are usable immediately. But that is accidental. The school period, on the whole, is a period of storage for the unknown future; it is a period for collecting facts without reference to their present use.

Here, then, is the shorter educational theory of the elementary schools:

- a. On account of the size of the system, there is scarcely a limit in the extent to which uniformity is necessary.
- b. The principal subject matter of instruction is what is automatically usable.
- c. The leading element in scholarship is accuracy in details.
- d. The time for the pupil to use his knowledge acquired in school is the distant future; not now.

Of course, this theory is not universally accepted; heretics are to be expected in any denomination. Some striking exceptions to its spirit are found in the variety of text books, for each study, allowed in the schools; also in some very prominent movements within the system, as in the special classes for defectives, the outdoor classes, and the individual care of children touching their physical defects. In addition, many of the teachers and principals are reluctant supporters of the theory. But a majority of both seem at least reconciled to it; and most of the superintendents are evidently ardent in its support, inasmuch as it originates with them. This theory helps to explain the quality of instruction, as we shall see later.

#### **b. Effect of Instruction on Children's Purposes**

Take, now, the relation of the teaching to the ambitions and plans of children.

Although problems, as they arise in daily life, are the main stimulus to the thinking that goes on in the world, the center of plans and purposes, the instruction in the schools is not usually organized around such centers. In composition, for instance, it is rare to find pupils writing with any purpose beyond satisfying the teacher. Grammar does not pretend to make young people conscious of new objects in life. Geography consists merely of facts that one may some day want—but not now; arithmetic represents the same viewpoint.

Even in those subjects that naturally appeal to the imagination and enthusiasm of children, like literature, music, and shop work, there is a strong tendency to ignore the child's attitude. The recitation in literature, described on p. 20, in which the accurate enunciation and pronunciation of individual words were the principal things talked about, is an example. Music plainly subordinates the children's motives to sight reading, and the shop work in the 8th grade allows the sequence of tools and of materials rather than child nature to determine the choice of objects to be made.

It is always to be kept in mind that there are striking exceptions to the general statements here made. But, judging from the instruction observed, there is reason for believing that, in general, the inculcation of purposes in pupils, through instruction, is scarcely thought of in the actual classroom work.

#### **c. Effect of Instruction on Children's Organization of Ideas**

When we turn to the organization of subject matter, we find certain studies, such as beginning reading—when the Ward method is used—arithmetic, music, and most of the work in construction, standing for a sequence that is rigid. While sequence, as an element in organization, is a good thing, this is a sequence of the scientist, not of the child; and

it usually has little effect upon a child's thinking, beyond causing him to dislike the subject.

The chief way of testing the influence of instruction on children's organization of ideas is to examine into the character of their responses to the teacher's questions. If these responses are pointed and forceful, the pupils have gotten into the habit of looking for a central thought—such as an underlying cause in history or geography—grouping their facts around it in sequence, and in considerable number. If they have not succeeded at this, but are striving in this direction, the efforts will easily be observable. Also, if the teacher is attempting to influence them in this respect, the fact will be shown in the pointedness and, particularly, in the scope of her questions.

Our visits to classrooms furnished no evidence that stress was being laid upon this matter. The responses of pupils were almost invariably brief and scrappy—a condition directly favored, rather than opposed, by the character of the teacher's questions.

#### **d. Effect of Instruction on Children's Weighing of Values**

In visiting schools it is very easy to observe whether or not much attention is given to relative values. But the writer visited twenty classes, in several different schools, before noting the slightest reference to the worth of things. Then a teacher in a reading class, feeling dissatisfied over the rendering of a certain sentence, said, "You do not seem to understand which word is most important in that sentence. Which one is, do you think?"

The prevailing attitude was that each thing taught, every fact, was taught because it was required; the curriculum called for it. Being necessary, then—in fact, absolutely necessary, practically speaking—what reason was there for stopping to discuss its relative importance? That would be superfluous! What was wanted was *results*; and there was no time to lose.

#### **e. Effect of Instruction on Children's Initiative and Self-Reliance in General**

It is by no means easy to show how, in the teaching of a given topic, the exercise of initiative can be transferred—from the teacher—to the class. But whether such a transfer is taking place, or whether, at least, it is being attempted, is very easy to see. Judging from the practice observed, there is, as a rule, almost no planning for the pupil's growth in self-reliance or self-expression. The teacher puts the questions, makes the corrections, and immediately directs every turn that is made.

In handwork, for example, we find a situation that seems typical. Pupils there are not allowed to experiment. To a boy suggesting another possible way of doing something an instructor was heard to say, "If you

know a better way than mine, walk right up and instruct the class." Sarcasm is the deadly weapon often used by numerous shop men to wither any initiative or originality that does appear, and to reduce boys to uniform subservience and docility.

Dictation, as a method of instruction in shop work and drawing, is very prominent. The children are told what to do and how to do it. Telling is reënforced by demonstrations. Usually when pupils cannot follow the verbal instructions of the teacher, they may follow or copy drawings, or detailed instructions from blackboards, charts, models, or notes.

In design there is practically no opportunity for initiative, save in choice among several designs offered in a few of the schools. Original designs have no place in the present plan. Slight variations in finishing or decorating some sewing projects, some selection as to colors used in weaving in the lower grades, slight opportunity for choice of models offered to be drawn, and some variation in the finishing of the pieces of shop work in the latter part of the course are permitted. But the limitations are so stringent that variation is discouraged rather than encouraged.

The New York City elementary schools, on the whole, are not attempting to develop the initiative and self-reliance of children through instruction.

#### **f. Conclusions in Regard to Quality of Instruction in Elementary Schools**

Thus, not one of the standards proposed for judging instruction is satisfactorily met. Indeed, the working theory, above mentioned, shows attention to be systematically directed *away* from these standards.

Take, for example, the first article in that theory—the belief in uniformity. Its influence is directly opposed to the development of individuality in children; variety is not obtained through uniformity.

Take the second article—the belief that what is automatically usable constitutes the core of the curriculum. That belief throws the main emphasis on the formal or mechanical portion of the subject matter; i. e., upon symbols in the three R's, location and map drawing in geography, dates and minor details in history, reading of notes in music, names and superficial description of objects in nature study, and technical processes of construction. That is just the kind of subject matter that is commonly recognized as deadening to motive, rather than a source of it. It is a very necessary part of a curriculum; but it must be subordinated to other subject matter and carried by it, if the instruction is to be inspiring.

Take the third article of the theory—that the leading element in scholarship is accuracy in details. That belief tends to divert attention from the grouping of facts according to their relations, to the isolated, individual fact. And, special merit being attached to details or little

things, the larger truths, such as must be considered in the principles of the various studies, in the deeper causes, in summaries, and in broad questions from the teacher, all of which are based on an extensive association of ideas, are at a discount.

And, finally, take the fourth article—that children are to acquire their knowledge, not for present use, but for the unknown future. That belief, to the extent that it is acted upon, in the selection and presentation of subject matter, destroys both the motive for the weighing of values, by children and the basis for doing it. For the worth of ideas is determined by the degree to which they are significant in one's life; but, if they are not significant at the time they are acquired, there is no reason for evaluating them; and there is no relation to them close enough to allow one to perceive their worth.

We do not assert here that the value of a child's knowledge is confined entirely, or mainly, to its present use; nor that children are unable to use, and should not use, their imaginations, so as to project themselves into the future, and look at matters somewhat from the social viewpoint. But we do say that, if children are to consider the value of knowledge, they must feel its present significance to them.

In general, the standards that we have proposed test instruction by the extent to which, through the acquisition and application of knowledge, it affects the growth of children in those mental processes or habits that count most in actual living.

On the other hand, the articles of the working theory above referred to are not plainly concerned with the growth or development of children; they direct attention primarily to finished products in the way of knowledge and technical skill.

According to the standards proposed for judging instruction, that now given in the New York City elementary schools is—in spite of many exceptions—on a low plane, poor in quality, and discouraging for the future.

It is very important to bear in mind, however, that this instruction is no worse than that found in many other places. If different standards had been adopted—in fact, such as have usually been applied in judging schools—very different conclusions might have been reached. But, if one accepts the standards proposed, one must come to the conclusions reached.

#### Attitude of Teachers

A matter intimately connected with the instruction, and helping to explain its quality, is the attitude of the rank and file of the classroom teachers. That attitude is not satisfactory and their thought, according to our findings, runs somewhat as follows:

In the first place, they are hampered by lack of authority either to punish unusually troublesome children adequately, or to have them punished. The result in many a room is a constant struggle to "get on some

way or other," leading to limitless waste of time and energy, and not seldom to loss of health by the teacher.

In the second place, they do not feel free. They are given no authoritative voice in helping to select the curriculum that they must present, or in dividing the time among the several studies, or in choosing the textbooks that they use, or often, even, in determining the methods that they follow. On every hand they are directed what to do, and how to do it.

One reason for these many limitations is the fear, on the part of the higher authorities, of serious blunders by weak teachers. But the effect is that the teachers, as a body, are treated as weak teachers, and distrusted.

Under these conditions, they cannot be expected to develop the initiative and individuality of their pupils; they are not allowed initiative or self-expression themselves; obedience is their leading merit; there is little provision, in the entire system, for their own individuality. More than that, any independent efforts that they might make in the direction of organizing subject matter in a new way, or of stressing relative values to an unusual degree, or of providing for motive in an original manner, would run the risk of disapproval by their superiors.

In the third place, there is lamentable lack of inspiring leadership by those persons in authority over them, i. e., the principals, special supervisors, and superintendents. The main relation of superintendents to them is that of inspectors merely, or judges, not of helpers; and the principals are too busy with others matters, or unable, for other reasons, to come to their aid in a vigorous, constructive manner. In consequence, no one in the system is discussing aims and principles with them and showing how these should affect their teaching.

This is the expression of convictions held by teachers. There are many exceptions, partly due to the school, and partly to the individual. But our findings convince us that such exceptions are unusual. Our findings further convince us that the teachers, as a rule, are conscientious and energetic; also, that, in respect to their profession, they are static and depressed.

Whether or not the attitude of the teachers is justified will be, at least in part, revealed later, particularly when the curriculum and syllabi for the elementary schools, the supervision by principals, and the work of the superintendents are under discussion.

#### **D. Recommendations**

##### **1. On Unification of Kindergarten and Primary School**

There is a striking contrast between the kindergarten and the elementary school, as the two are now conducted. The key to the difference is found in two facts; i. e. (a) that the acquisition of knowledge is regarded as a mere means to larger ends, in the kindergarten; while it

is made the dominating purpose—the end itself—throughout the primary school; and (b) that the knowledge acquired in the kindergarten is chiefly that which can be a source of inspiration; while that chiefly emphasized in the primary school consists of symbols and formal facts, as, for example, in the three R's and spelling.

The result is that these two parts of the system fail to harmonize. Indeed, they are so unlike in controlling purposes, curriculum, methods of presenting the same, attitude of the teachers toward pupils, and even in the appearance of the rooms, that the primary school not only abandons important lines of influence begun in the kindergarten, but tends to nullify them. Such a dualism in the theory and practice of educating children—within a single system—is most wasteful.

Beyond doubt, there is a real difficulty here, in the fact that a time must come—usually recognized to be at about six years of age—when symbols must be attacked with vigor. But that is insufficient reason for the almost complete abandonment of valuable influences for the development of habits that it has required one, two, or three years to establish. Both plans can hardly be sound; and, according to the standards used for judging the quality of instruction, it is the elementary school that needs the greater modification. The question for serious study, therefore, is: Can the elementary school continue the main lines of work begun in the kindergarten, while giving mastery over symbols?

## **2. On Limiting the Tendency Toward Uniformity**

The extent to which uniformity is necessary in a great system of schools is one of the most important questions among those suggested in this part of our report.

Possibly, there cannot be too much uniformity of procedure in the business management of the schools, and there are weighty arguments in favor of a great amount of it in instruction. On the other hand, according to the common conception of educators, excellence in method of teaching consists in the close adjustment of subject matter to individual experience and peculiarities. It is thus conditioned by the highest degree of diversity in practice. Uniformity is hardly the means of securing this diversity. A system of schools, therefore, in which uniformity is believed in and practiced, without much limit, cannot be expected to reach a high degree of excellence.

## **3. On the Status of the Classroom Teacher**

The authority of the classroom teacher should be more definitely fixed. If obedience is to be one of her (his) principal virtues, then everyone concerned should understand that fact. On the other hand, if a good degree of freedom on her (his) part is recognized to be necessary, as a condition of developing self-expression and self-reliance among

pupils, and of securing the teacher's own growth, then a well-developed plan by which freedom is guaranteed should be put into print. Such a plan might do much to allay present discontent among the teachers. At any rate, the task rests upon the higher school authorities to discover the reasons, and the remedy, for the present dissatisfaction among the teachers. There is no doubt about its existence.

#### 4. On Discipline of Unruly Children

The question of the discipline of unruly children seems to us one of those that most urgently demand attention.

In consequence of the great size of most of the schools, there are sure to be, in almost every one of them, a few children who are boldly and persistently disobedient. Some of these are more or less rowdyish and insolent, but hardly vicious; others approach the criminal in character—sometimes attempting to start a panic in fire drill, by shouting and running; sometimes using foul language to the teacher or throwing a book or a knife at her; sometimes remaining away from home, in bad company, three or four nights at a time; sometimes beating their mothers, and frequently defying both classroom teacher and principal outright.

A small percentage of these, the very worst, are now provided for in the school for truants in Manhattan, the disciplinary school in Brooklyn, and the parental school in Queens. In order to have them transferred to one of these schools they must have a hearing before the district superintendent, and the sentence to commitment must be approved by the parents, and also the city superintendent of schools. Or the unruly child may be sent to the children's court for trial and sentence.

But under present conditions not many of these children are likely to be disposed of in this way, for several reasons:

- a. These schools can accommodate only a small number at best; and it does no good for the District Superintendent to recommend the commitment of a child to such a place, if there is no room for him there.
- b. There is no certainty of promptness in the settlement of such cases—for various reasons; nor is there certainty of a final sentence. For example, no pupil may be committed who is suffering from defective nasal breathing, and the like, until he has been subjected to operative treatment and time has elapsed to allow for a possible cure. Also, there seems to be an unwritten tradition that a pupil shall be tried in three different schools before being sentenced to one of those above named. The delays and the uncertainty of the outcome—we are assured—hold about the same in these cases as in our criminal courts.



- c. The principal has special reasons for bringing very few such children to trial. For, if he does bring one, he must spend much time in preparing and presenting the case; he and his teachers must be placed on the same plane as the pupil in offering evidence, so that not seldom they themselves, rather than the pupil, seem to be on trial; he cannot but fear that his district superintendent, whose rating influences promotion and rank, will consider him incompetent in management; and he is very likely, finally, to be instructed to take the child back and "give him one more trial," or to transfer him to another school.

Thus, in spite of much trouble and humiliation on the part of the principal and teachers, the pupil may seem to be sustained and the influence of the principal himself throughout his school undermined as the result of such a hearing.

- d. Finally, it is very plain to teachers and principals that the transfer to one of these schools is not at all what many of these children most need. A large portion of them are only semi-incorrigibles, capable of being saved from commitment, if effective punishment were allowed on the spot.

Considering the city as a whole, therefore, there is a large number of children—a few in this school and a few in that—who are extremely disobedient and disorderly—often defiant—who must be kept within the school; there is, practically, no other provision for them. They have little respect for authority; little regard for the rights of others; and little fear beyond that of bodily hurt. What can and does the principal now do to control these?

First of all, neither he nor the classroom teacher may *touch* them in way of administering punishment. A by-law of the Board of Education forbids that. And these children are as well acquainted with that by-law as are their teachers themselves. In fact, they have not infrequently dared a teacher or principal to lay hands on them, threatening, in that case, to report the action to the Board of Education, to have them fined, etc.

The principal, then, can try moral suasion, can appeal to the parent, and use many other ordinary means for securing control—which will sometimes prove successful, in spite of the hardened condition of the pupils.

Or he can make threats of things to come—awful but vague—and untrue—and sometimes succeed in that way.

Or he can do any one of four other things:

- a. He can make use of ridicule or sarcasm; or can torture children by placing them in unnatural positions, standing or sitting, until they approach exhaustion.

- b. Or, in righteous indignation over a pupil's intolerable conduct, and in defense of his own self-respect, or that of a teacher, he may chastise a pupil vigorously, running whatever risk of later punishment himself that is necessary.
- c. Or, taking a child off by himself, away from all possible witnesses, he may mete out to him all the punishment that he thinks is deserved. Being alone, the pupil can never prove anything against him.
- d. Or, finally, he may "smooth over the case," or ignore it outright, leaving the responsibility upon the classroom teacher of getting on with each pupil as best she can.

As a result of numerous conversations with teachers and principals, and of correspondence also, we are convinced that all four of these methods are rather common, while the last is most common.

The results are of the gravest character:

Saying nothing of the fact that to many pupils punishments more cruel than corporal punishment are applied, and that the by-law forbidding corporal punishment is often ignored, the great fact is that many classroom teachers are at their wits' end every day to discover how to give instruction while certain pupils constantly cause disorder. A large portion of their time and energy is expended merely in trying to get on with such pupils, until ill-health results from worry and exhaustion.

Although any educational system that enforces compulsory attendance is under obligations to protect each pupil, not only from physical, but also from moral contagion, it is a fact that the great majority lose, correspondingly, through no fault of their own, while observing examples of disobedience that are extremely injurious.

Finally, the troublesome pupils, themselves, conscious of the powerlessness of their teachers, become confirmed in lawless habits in the very place that is intended to teach them to observe the rights of others; and these lawless habits, carried into after-life, lead directly to the lawless gangs and rowdy conduct so common to-day.

Convinced of the seriousness of these facts, we make the following recommendations:

- a. That the by-law of the Board of Education expressly forbidding corporal punishment be rescinded. The state law touching assault and battery sufficiently covers cases of unwarranted severity toward pupils.

- b. That the number of parental schools for the most depraved children be increased, in which the inmates shall be under constant confinement; also that the number of disciplinary schools be increased, in which the inmates shall be confined throughout the day. That the mode of commitment to these schools be greatly simplified; that a special curriculum be allowed in each of these schools, peculiarly fitted to the needs

of the pupils; and that corporal punishment be allowed in them.

c. That, in other schools (a) the principal and the few persons to whom he may delegate the right, shall have authority to use physical force with pupils; or, when it is deemed advisable by the principal, one or more classes composed of troublesome children shall be formed, after the type of the present ungraded classes; and that in these special classes the principal and the teachers of such classes to whom he delegates the right, shall have authority to administer corporal punishment.

d. That corporal punishment be inflicted only under the following restrictions:

- (a) That each child first receive a medical examination;
- (b) That, if possible, the written consent of the father or guardian be secured;
- (c) That such punishment be applied only in the presence of some adult witness;
- (d) That accurate records be kept of all cases of such punishment, together with the conditions that led to them and the mode of its administration.

We are convinced, from the data we have been able to gather, that these recommendations possess the following advantages:

- a. That the number of attempted commitments to institutions would be greatly diminished, thereby avoiding a great waste of time and energy on the part of district superintendents, principals, and teachers.
- b. That the mere knowledge on the part of the unruly pupils that they may be subject to corporal punishment for their wrongdoing will of itself make actual punishment unnecessary in a great majority of cases.
- (c) That the number of cases of corporal punishment in the city will be reduced below the number at the present time.

### **5. On the Aims of the Elementary School**

The foregoing conclusions declare that, in general, the instruction in the elementary school is poor. It would hardly be so unsatisfactory, as it is, if the working aims themselves of the school were not so low. The most depressing fact about this part of the investigation has been our inability to discover either any general striving toward the higher aims of instruction or even signs of such general striving. Such signs, at least, would be in evidence, if broad purposes controlled the field. This fact emphasizes the importance of a formulation, by the school authorities, of the main objects elementary instruction should aim to accomplish, in terms that are significant to teachers and laymen alike, and that breathe a broad spirit.



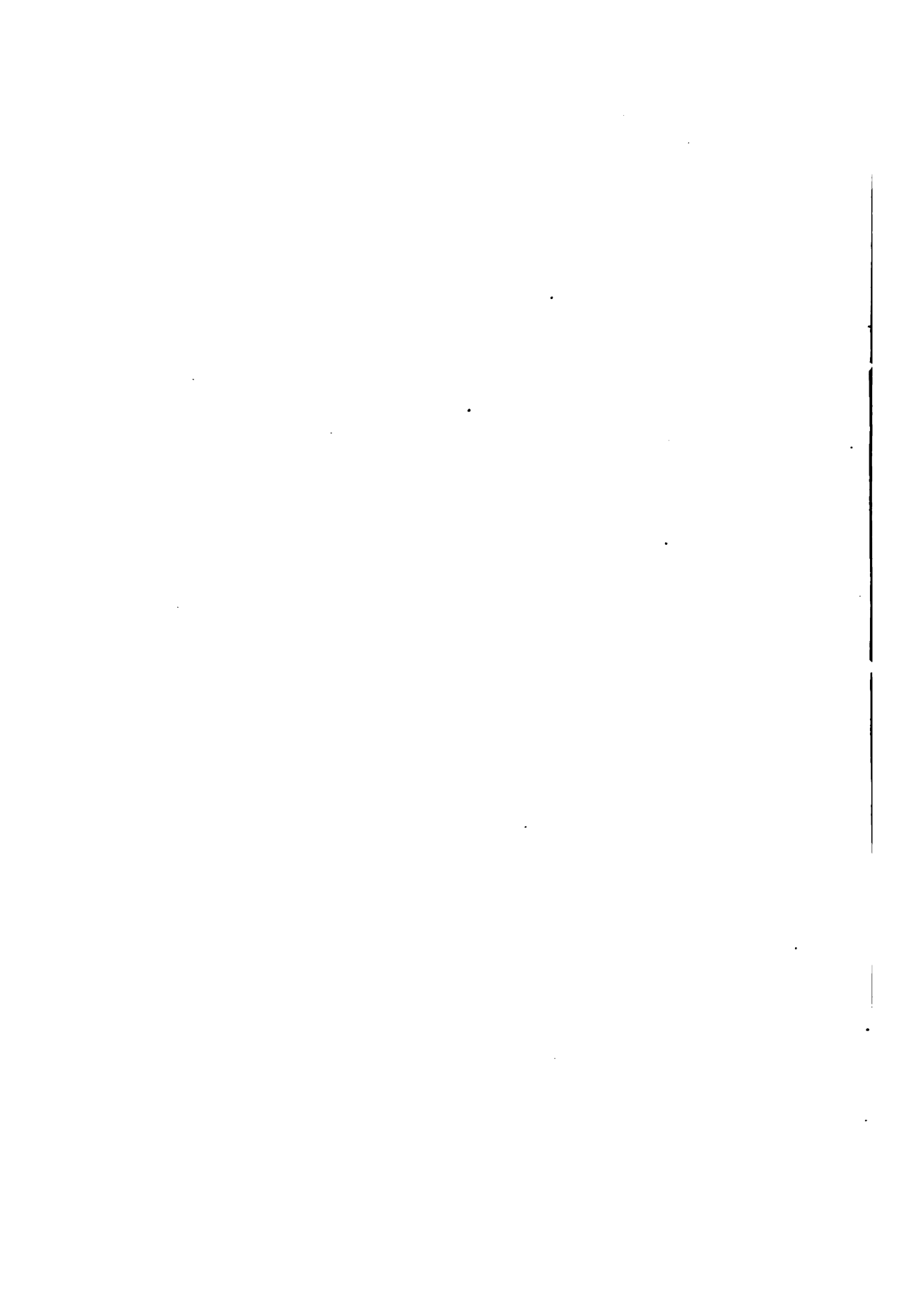
**THE COURSE OF STUDY**

**FRANK M. McMURRY**

**SUBDIVISION I**

**ELEMENTARY SCHOOLS**

**SECTION B**



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## CURRICULUM AND SYLLABI OF THE KINDERGARTEN AND THE ELEMENTARY SCHOOL<sup>1</sup>

### A. Standards for Judging Value of Curriculum and Syllabi

#### Prominence of Curriculum in Determining Quality of Instruction

Thirty years ago the belief was often expressed that it made little difference *what* one studied, but all the difference in the world *with whom* one studied. That belief made almost any curriculum acceptable, and directed attention to the personality of the teacher and to *method* as the principal factors determining the effectiveness of instruction.

That belief, however, has been greatly modified. While no one will deny the importance of the teacher's personality, most persons will admit that the proper expression of personality and skill in method are both greatly dependent upon the subject matter of the curriculum. Carefully selected subject matter is prerequisite to skill in method of presentation. Without a good curriculum there is bound to be great waste.

#### Bases for Judging Curriculum and Syllabi

##### 1. By Relation of Subject Matter to Children's Purposes

In harmony with the previous discussion of standards for judging the quality of instruction, as a whole, the quality of the curriculum in particular is to be determined partly by its tendency to influence the tastes, purposes, and hopes of children. Any curriculum for the elementary school should have its content selected from among those experiences of mankind that have seemed most valuable. That is to be presupposed. But this selection can be indifferent to the tendencies, interests, and capacities of children in general, and of certain ages in particular, and aim only at present storage of facts and ideas that may count in a dim future, i. e., in adult life. Or it may be made with constant reference to the abilities, tastes, and needs of children at the present time. In the former case, motive on the part of children is overlooked; in the latter case, the extent of provision for it is accepted as one of the standards by which the curriculum is to be judged. We represent the latter point of view.

<sup>1</sup> While it was intended to include all the subjects of instruction in this study, lack of time compelled the omission of history and civics, penmanship, and foreign language.

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## **2. By Their Tendency to Call Forth the Initiative of Teachers and Children**

A further basis for estimating the merits of the curriculum and syllabi is found in their attitude toward the exercise of initiative on the part of teachers and pupils. The syllabi in particular—being an interpretation of the curriculum and in addition containing suggestions on method—may show the subject matter to be so attractive as to directly invite attack by children. Also, they may suggest so many different sequences of topics, and other procedures requiring choice, that they surround both teacher and pupil with an atmosphere of freedom, and thus directly favor the exercise of initiative on the part of both. Or they can offer a skeleton so bare that it repels all who behold it; and they can so insist on certain suggestions of sequence and other procedures by offering no options and by repeated reference to such sequence and procedure as desirable, as to surround the teacher and finally, through her, the pupil with an atmosphere of restraint that tends to suppress all originality.

## **3. By the Kind and Degree of Organization of Subject Matter**

The first great condition of the proper organization of ideas in the pupil's mind is that they be well organized in the curriculum itself. If they be scattered there, it is too great a task to expect the classroom teacher to establish order among them before putting them before children. One of the first characteristics of a good curriculum, therefore, is avoidance of isolated facts. In general, whatever items of a study cannot form a necessary part of some valuable whole must be omitted; and those that are accepted should have a recognizable place in a series of ideas, with cross relations or correlation with other studies.

## **4. By Attention to Relative Values**

Finally, the value of both curriculum and syllabi is to be judged by the emphasis they succeed in placing upon the more vital and real parts of each branch of knowledge in comparison with that placed upon the less important and more formal portions. Every study contains a multitude of minor facts that any one is expected to know, such, for instance, as dates in history, locations of places in geography, and pronunciation and meaning of individual words in literature. These can stand out so prominently as to seem to constitute the body of the study; or they can be so subordinated to what is fundamental that the latter is made to carry the former and constitute the bulk of the subject matter. To the extent that this latter object is effected the curriculum and syllabi satisfy one important test of excellence.

## **Curriculum and Syllabi on Two Different Planes**

In discussing standards for judging the value of classroom instruction (page 16), it was shown that, according as instruction met the

tests proposed, it belonged to one of two planes. The same holds true with reference to the curriculum and syllabi. Probably no curriculum in existence ideally meets any one of the four tests we have employed. Yet some of them, in some of their parts, attain one or more of these standards to a remarkable degree; and in many of their parts show partial success in the same direction. Others scarcely show signs of any striving toward these standards. It is, therefore, their partial successes, and the endeavor they show to achieve such successes, that make the distinction between acceptable curricula and syllabi and those that should be condemned. Those are considered good that show excellence at many points and promises of improvement; and those are considered poor that ignore these standards.

## **B. Application of These Standards**

### **1. The Kindergarten**

There is at present no definite and uniform curriculum or program for the kindergarten. The only way, then, to judge of the character of the program most commonly in use is to apply standards of worth to what one sees in the various kindergartens. Certain features are prominent in all, such as songs, stories, bodily activity, including rhythmical movements, and games, and much use of materials in arranging, designing, and constructing. Just what ideas are to be conveyed by, or developed through, these activities; just what experiences are to be given or deepened by them; just what habits are to be established, seem to rest largely with the individual teacher.

#### **Provision for Motive**

In most of the kindergartens visited, the body of thought which gave direction to the activities was close to the children, and of such nature that purposes would naturally arise and be carried over into home life and outside play life. Prominent topics were the child's relation to family and friends, to animals, to industrial workers and tradespeople, and to public servants. Attention was frequently directed to small services the children might render, and ambition was aroused to acquire skill or power in order to win certain positions of trust and responsibility within the group. The things the children made also frequently gave a considerable degree of continuity and fixity to their purposes.

#### **Provision for Organization of Subject Matter**

The kindergarten program always shows attention to organization. Some teachers provide for a distinct correlation running through song,

story, nature work, rhythm, games, gift work, and occupations. Others correlate part of the activities, and depend on the sequence of materials to afford the ordered presentation of others.

### **Consideration of Relative Values**

The children are more frequently called upon to judge of the desirability of certain acts or modes of doing than of the worth of facts or ideas. The values which are kept prominent, therefore, are of a dynamic kind, and, to a large extent, the children's incipient powers of judgment and discrimination are called out in connection with matters on their own plane.

The teacher's own sense of values is, of course, very influential, for if she seems to attach more importance to such matters as technique, precision, and exact imitation than to initiative, originality, suggestive variation, and ability to work out problems; then the former types of excellence are those which the children will soon place uppermost. There is evidence that in some quarters these more formal values are being overemphasized.

### **Provision for Individuality**

That the curriculum does not limit the teacher's freedom is evident from numerous facts. Pride in the appearance of the room, arrangements for comfort, conveniences, and æsthetic effect, the presence of objects calculated to arouse interest and stimulate thought, variety in the subject matter—all show initiative and zeal on the part of kindergarten teachers. Unusual interest is displayed also in the individual child, and it has been found that the kindergartner almost always knows the personal history of any child singled out.

Since self-activity is one of the cardinal principles of the kindergarten philosophy, we should expect to find no lack of opportunity for the exercise of initiative on the part of the children. That such opportunity is provided, so far as the curriculum is concerned, is plainly shown in the fact that the work undertaken is, with the exception of stilted gift work here and there, selected with much reference to children's tendencies. Such subject matter abundantly favors the exercise of initiative and the expression of individuality in other ways.

In brief, the kindergarten curriculum, as a rule, is so plainly determined by reference to the chief aims of the school, as expressed in the four standards proposed, that it greatly aids the kind of classroom instruction that can meet those standards.

## **2. The Elementary School**

### **(a) Reading and Literature**

It is safe to assume that the general object of this portion of the course in English is to introduce the pupil to the main lines of reading

that one who goes no further than the elementary school may be expected to pursue; and to do this in such a way that the reading may be intelligent, appreciative, and habitual.

The range of subject matter, therefore, should include both classic literature and, to some extent, current publications, such as newspapers and magazines. The main problems are to make such selections from within this field as will appeal strongly to the individual pupil; and then to present them in a way that will subordinate the symbols to the thought.

### Provision for Motive

The quality of subject matter listed in the curriculum is excellent; there are only two objections that need be considered here. One is the narrowness of the offering. A stranger looking through the list is likely to be impressed with the neglect of current literature. If one important object of the English course should be to identify the pupil with such literature, i. e., to appeal to his interest in the newspaper, magazine, etc., and develop that interest further, so that his tastes there will be good, and his method of reading intelligent, then these kinds of subject matter should be more prominent than they are.

The other objection is the utter impossibility of securing the fullest adaptation of literature to individuals when the 650,000 pupils of Greater New York, living in radically different local environments and homes, are expected to cover substantially the same subject matter at substantially the same rate. The whole trend of modern education, in its emphasis on individuality, is opposed to that plan. In literature, in particular, where the development of taste is so important; differences in individuals should receive special attention. Boys often need selections different from those for girls; some children need to devote twice as much time to stories as others; a few 8th-grade pupils may be able to read Shakespeare and the Webster and Hayne debate with profit; but many cannot. Any teacher has her preferences, and can teach some selections with far greater effect than others. Why should all such facts as these be, in the main, ignored when the very definition of good teaching signifies adjustment to individual conditions?

In provision for the subordination of form to thought, in beginning reading, the syllabus shows breadth. Ideas over the country vary a good deal in regard to this problem, and teachers, while practically being urged here to let the thought lead, are left free to follow their own will in method. One striking exception is in the syllabus for Grade 1A in the direction that ". . . Daily lessons should be given on the sounds of single letters and combinations of letters." Many an excellent teacher would feel this requirement to be a direct barrier to her success in awakening interest. No doubt it is greatly needed in some classes. But that is not a good reason for requiring it in all.

The statement in Grade 4A that "Pupils should be trained to depend

largely on the context for the meanings of words" contributes greatly to motivation of the pupil, being based on principle. But its spirit is almost directly opposed in 2B, where the request is made that "exercises that will insure the prompt recognition of the form and an understanding of the meaning of new words" should *precede* the reading. That signifies *formal* work.

The frequent suggestions favoring the teachers' reading before their pupils are excellent, since good oral reading by the teacher is recognized as one of the most effective means for inculcating a love of literature.

Yet, taking the syllabus as a whole, there is a striking overemphasis of the minor parts of good reading, i. e., of form, in distinction from thought. For example, the number of new words to be acquired in a half year is so frequently mentioned, and phonic drills and distinct enunciation are made so urgent, that one rather easily gets the impression that these things, taken together, mean good reading. This conception, no doubt, to a considerable extent accounts for such recitations in reading as that in the fifth grade described on page 20, where each child was allowed to read only a single sentence, and his general ability to read was judged by the accuracy with which each word was enunciated and pronounced. That plan directly checks motive on the part of pupils.

#### Attention to Relative Values

This last point brings up the question of relative values in general. How about the relative importance of silent reading, for example, in comparison with oral reading? Most of the suggestions on method in the syllabus concern the latter. Yet, judged by the prominence of silent reading outside of school, and after school life is over, a large part of the reading in school might well be silent. The task then would be to show wherein good silent reading consists. The syllabus shows some comprehension of the importance of this matter, since silent reading, without reference to oral reading, is recommended in Grade 2B, and referred to several times later. But the test suggested for silent reading, i. e., ability to express the substance of the thought, is very inadequate. Any one must admit that reading merely to know what an author says is passive, and scarcely admissible in real study outside of educational institutions. Therefore, one of the important questions is: How is the school to prepare for the more aggressive kind of silent reading? It is to be regretted that the syllabus does not place greater emphasis on silent reading, and show its desirable characteristics far more fully.

The syllabus makes admirable suggestions about reading for "essential meanings" in Grade 6B, and directly recommends the neglect of minor matters in Grades 7 and 8 for the appreciation of the larger features. But why not similar suggestions in earlier grades? In second reader selections, for example, some portions of a story are usually more important or finer than other portions. Should not children be taught



to locate these greater values almost from the beginning of school life, and thus establish the habit of being selective? And, recalling remarks above, should not such judgment about values be expected as an essential part of silent reading? More than that, should not judging of the relative worth of such books, stories, magazines, and newspaper articles as boys and girls read be made a regular part of school work in English from about the fifth grade on? The temptation among children to read trashy literature and to listen to degrading stories is common. It is, therefore, important to cultivate the power to distinguish between what is coarse and what is fine, and between good and bad.

### Attention to Organization, and Exercise of Initiative

The plan for the work in English is to be commended for not attempting to group selections according to some central idea, for the way is not yet clear to do that with much effect. The organization of the particular selection is, therefore, the only kind of organization to be considered here; and, since that is already provided for by the author, those who plan the course need not concern themselves further about the matter.

As to provision for the exercise of individual initiative by teacher and pupil, the situation is by no means so simple or satisfactory.

By the time the seventh year of school is reached, the pupil himself should be able to determine, to a large extent, what should be done with at least a good portion of the selections assigned to him for study. How, otherwise, is he learning to read independently and intelligently outside of school?

But, if this object is to be accomplished, the beginnings of the exercise of such independence must have begun very early in the grades. That is, the children must early have learned to put some of the necessary questions, as well as to answer them; they must have learned to select the more valuable parts, and make fitting remarks about them. That means that the teacher, from the first year of school, must have labored to cultivate the pupils' initiative, keeping herself in the background. The silence of the syllabus in regard to this whole matter—consideration of which might well constitute a full half of all thought on method—leaves one in doubt whether the *growth* of the pupil toward self-reliance is the aim here so much as mere knowledge, and such a doubt no syllabus should allow.

There is some reference in the syllabus to "informal talks on books read at home" (in 6A); but the extent to which pupils should follow their individual preferences in their reading, and use the recitation period for reporting upon the same to the class, is a far more important question than is indicated.

In the higher grades there are definite suggestions as to how many times we need read a masterpiece for appreciation, which is apparently

two times in Grade 6B and three times in Grades 7 and 8. The danger of thus giving specific directions without reference to the principles involved and to the kind of selection is well illustrated in this case, for such directions, presented so arbitrarily, are bound to produce a mechanical effect. Many good selections are not the kind that one needs to read three times, as, for example, Longfellow's "Hiawatha." Or, if one reads them three times, it would not be in the ways described. A hasty, more or less careless, first reading of a long selection is often one of the worst introductions to a classic; yet the instructions in the syllabus have caused that practice to be quite common in New York City. The difficulty with the syllabus at this point is that it suggests uniformity in detailed practice, while the only uniformity admissible is that in aims and principles. If the syllabus had stated the few leading aims and principles involved in the teaching of literature, and then had shown, by a few illustrations, how they variously affect practice, according to conditions, it would have given most valuable help. As it is, it tends rather to limit the freedom of teachers to study individual conditions and adapt both subject matter and method to them.

### Conclusion

In general it may be said that the selection of subject matter for reading and literature is good so far as it goes; and many of the suggestions on method are valuable. The main defect is that the point of view in making selections is narrow, omitting much that should have been included; and in offering suggestions on method the syllabus is arbitrary.

### b. Composition and Grammar

#### Provision for Motive

The first condition of success in composition is the real desire to say something. A certain private school, wanting the anniversary of Lincoln's birthday, as well as Washington's, for a holiday, determined to send in a petition to that effect to the principal. This need furnished the stimulus for competitive letters written by all the pupils of several rooms, and the best of the letters were forwarded to the principal.

One of the public school principals in this city has a collection of compositions, recently received from boys, telling of their experience in collecting stamps. There was a real purpose in writing in both these cases, so that the prime condition of good composition was met.

Some teachers regard that condition as normal. They conceive children to be as well supplied with purposes, that require oral and written speech for their accomplishment, as with facts; and they regard the work of making children conscious of such purposes, and of formulating

these as subjects for compositions, as one of the leading elements of all good composition teaching.

Little sympathy with this conception is shown in the curriculum and syllabus for composition in the New York City elementary schools. The nearest approach to it is found in the early grades, where the desire is expressed that "the subject matter of the language lessons be interesting and instructive." But there is no reference either then or later to the need of a real purpose, on the part of the pupil, in the proposed conversations, story-telling, and writing expected from him beyond the improvement he will get in language. Even classic literature, of which much use is to be made, is considered valuable not so much as a source of live topics that need discussion but more as a source of models of style, for imitation. Composition, in the minds of the authors of the syllabus, aims at correctness of form, at clearness, accuracy, and sequence, in the presentation of thought. Classic models supply the best examples of these, and imitation secures practice; therefore, they must be the chief means of developing power in these respects. The need of motive for the expression of thought, in composition, is ignored.

This attitude helps to explain the course and syllabus in grammar. That subject really begins in the fourth grade, under the heading of composition, with a classification of four types of declarative sentences; in the beginning of the sixth grade it takes an independent place in the program, which it holds throughout the 6th, 7th, and 8th years. The absence of motive and the degree of its isolation from other subjects are indicated by two facts: First, in the prominence given to mere classifications, in the 6th year. For example, the following is a full statement of the work for Grade 6B:

"Grammar. The instruction should be limited to the subdivision, inflection, and syntax of nouns, pronouns, adjectives, adverbs, prepositions, and conjunctions. Only the most important subdivisions should be studied: of nouns, two classes, common and proper; of pronouns, four classes, personal, interrogative, relative, and adjective; of adjectives, two classes, descriptive and demonstrative; of adverbs, those expressing time, place, degree, and manner, and interrogative adverbs; and of conjunctions, coordinating and subordinating, copulative, and disjunctive. Rules of syntax should be studied in connection with words occurring in sentences.

"Phrases should be classified according to function, as noun, adjective, and adverbial—not according to form.

"Analysis and synthesis should be limited to simple sentences."

The other fact showing how isolated most of this work is expected to be is the statement in Grade 8A that: "In this grade emphasis should be placed upon the connection between composition and grammar." The idea seems to be that, after having classified the facts of our language in the preceding years, the pupils of the 8th year shall discover the motive

for such dull work, i. e., they shall see how these classifications are related to composition.

The value of this course in grammar must be seriously questioned for three reasons:

- a. It is no source of mental life to the average pupil; and, being made prominent in the crucial sixth year of school, tends to drive children out of school.
- b. Experience within the elementary schools has shown that the rules of grammar, learned apart from composition, literature, and conversation, have very little or no effect on the correct use of English.
- c. The time required for this kind of instruction must be mainly taken from composition and literature, and thus seriously weakens the appeal they make to children.

According to the time allotment of studies there are 375 minutes per week that can be given to English in the sixth year of school, aside from seventy-five minutes for penmanship. Out of this time the claim of spelling for approximately fifteen minutes per day, or seventy-five minutes per week, cannot be denied. Grammar as a separate subject cannot possibly get on with less than three periods per week of thirty minutes each, which makes ninety minutes. That leaves 210 minutes per week for literature and composition. If we assume that literature should receive at least thirty minutes per day, or 150 per week, that leaves sixty minutes, or two thirty-minute periods, per week, for composition. There are 205 minutes per week set aside for study and unassigned time. Out of this amount at least thirty minutes per day, or 150 minutes per week, are expected to be devoted to study, not recitation, leaving eleven minutes per day that can be used where most needed. Several other subjects as well as English are, of course, clamoring for more time; hence it cannot be expected that all, or even most, of this will go to English, as a rule. We see, therefore, that this grammar, while tending to discourage pupils, and while affecting their English only slightly at best, is also crowding out other work that is absolutely necessary.

#### Attention to Relative Values

The emphasis, after the third grade, on model letters and model specimens of narration, description, and exposition helps to explain two striking omissions in the syllabus. The qualities frequently named, and set up as aims, are *clearness*, *accuracy*, and *sequence*. These certainly are desirable. But suppose that Lowell writes a model letter to Emerson thanking him for a book; and children, in imitation of this model, write to some friend likewise expressing thanks for such a present. The model letter cannot be fully followed. It must be modified, according to the persons concerned and the conditions. In other words, the *fitness* of

one's remarks, as well as their clearness, accuracy, and sequence, is a great factor in composition.

Again, if a pupil applies for a position, the success of his letter is likely to depend very much upon the reasons he can give for thinking that he is the most desirable candidate. One of the main tests of almost any kind of composition is found in the extent to which the data offered produce a vivid picture, a proof, a conviction. In other words, the *force* with which one presents ideas is another vital factor in composition. Clearness, accuracy, and sequence do not include these two; nor are they superior to them in importance. Why, then, is there no reference to either of them in the syllabus? The reason seems to be that want of appreciation of the need of any specific purpose in composition has caused these elements to be entirely overlooked. In addition, the absence of any particular aim in writing would deprive a writer of all means for judging the fitness and force of his statements anyway. Consequently, unless the authors of the syllabus had urged the importance of having a particular object in writing, any discussion of fitness and force as factors in success would have been useless.

The criticism here pertains not to what the syllabus includes but to what it omits.

Aside from this omission it is plain that much attention has been directed to the relative importance of various parts of composition work. In particular, the emphasis on much oral composition for its own sake and as preparation for written work is worthy of commendation.

Reference to relative values in the case of grammar is in place only when it is approached and treated as an art. For values are present only to the extent that relations to our interests are established. But grammar is not expected to be approached and treated here as an art. For example, as above quoted, the connection between composition and grammar is to receive emphasis in the eighth grade only. Grammar, then, is here presented as a science or, the outline being very brief, as a mere skeleton of a science. Who, in that case, can point out the most important part of a page or a chapter? Appreciation of values is to come later. Thus, as presented, this subject deliberately trains children to omit consideration of varying values at a time when the habit of weighing value is one of the most important ones for them to form.

### **Attention to Organization**

In its frequent reference to paragraphing and outlining, the syllabus gives desirable prominence to organization of ideas. But examination of the larger features of the plan reveals a peculiar defect in this respect.

One might suppose that classical selections treated in the periods set aside for literature would be drawn upon mainly, both for model examples for imitation and for subjects of discussion in composition. Proper correlation between composition and literature presupposes that. But

not so, in the main. While a general plan is proposed, as previously explained, for the appreciative reading of a masterpiece of literature as a part of literature, in composition another general plan is also proposed, even in the same year (the 7th) for a study of specimens of narration, description, exposition, and familiar letters selected from literature with the object of imitating them. There are supposed to be three readings in each case; and, while there is perhaps more attention to the author's plan and style in the latter case than in the former, one wonders why there should be so much duplication. This nearly complete duplication of work indicates that the authors of the syllabus intentionally avoid correlation among studies; and there are many other facts that suggest the same intention.

### **Provision for Exercise of Initiative of Teachers and Pupils**

In the field of composition the exercise of initiative involves expressing what one thinks and feels in one's own way. Many persons believe that one great object of composition is to help a person find out what he really thinks and feels, and to help him to express it in the way peculiar to him. With this object in mind, literary models should come late in the unfolding of thought on a particular topic, otherwise they are in danger of supplanting the pupil's own thoughts and style, and thus submerging him. Their function is not to supplant the self, but to offer aid *after* the self has found something of its own to stand upon. Then they are a very valuable source of suggestion, revealing desirable changes here and there in what is, at bottom, one's own. The conviction that good thought and good style are mainly to be gotten by imitating another is one of the worst calamities in a student's intellectual development. Imitation is a very valuable aid in securing good expression of thought, but it is a subordinate, not the chief, means; it is subordinate to self-expression.

In the curriculum and syllabus of New York City, however, imitation is the watchword; correct expression, rather than self-expression, is the aim; and positive suggestions for the preservation and development of originality are wanting.

With this conception of the worth of the pupil's individuality, it is not at all strange that the teacher's individuality seems to have been overlooked in important respects. For example, in Grade 5A the direction is given that "Only one kind of error should be corrected at each reading of a composition." That is nothing else than wooden. In Grade 7A the model specimens are to be studied in a certain way, as above referred to. Of course, these directions may be taken only as suggestions, although great numbers of teachers deny that they are commonly so interpreted by the principals and superintendents. But why should even suggestions be made whose influence is bound to be in the direction of uniformity, when adaptation to particular conditions, which

means diversity, is the standard of excellence? Should not many a classic model be read primarily to observe how vivid are the pictures the author produces? Should not many another be read mainly to study the peculiar force of particular words or phrases? There is no fixed way of treating these subjects; and to assume that there is, not only misleads immature teachers, but tends to tie the hands, or check the initiative, of those who are mature.

Further, the insistence on substantially the same curriculum in composition for all schools means infringement on the exercise of individuality by teachers and principals to a marked degree. For example, the list of prevailing errors in English restricts the activity of the teachers to those errors, whereas the actual errors vary to a limitless extent in schools representing different nationalities as well as home advantages; likewise, the amount of time to be devoted to oral and written expression of thought should vary extensively. The classroom teachers and principal of a given school are the only persons who possess the knowledge necessary to decide these matters, and their positive proposals are *required* if the curriculum is to make its fair contribution toward classroom efficiency. But the manner of presenting the present curriculum and syllabus at best *allows* freedom to act in these matters; it does not put a premium upon its exercise.

These, then, are prominent facts touching the curriculum and syllabus for composition and grammar:

They ignore the need of any particular purpose to be accomplished when one writes; and, in advocating grammar as a regular study, they emphasize their disregard for motive on the part of children.

Motive being thus disregarded, the basis for consideration of relative values is omitted completely, and very naturally some of the most important elements in composition—which are suggested only when motive is kept in mind—are ignored.

The importance of correlation between literature and composition is not recognized. Imitation is made so prominent that the individuality of children is endangered; while the directions given to teachers on method tend seriously to limit their freedom, and insistence upon substantially one curriculum for all schools prevents the adaptation of the instruction to individual conditions.

### c. Spelling

#### Motivation

The spelling of from 3,000 to 4,000 words is expected to be learned in the course of the eight years, and they are each year "selected from the pupils' vocabulary and from the lessons of the grade." This source provides far better for motive than do such lists as are usually found in textbooks. But even this limitation is too broad when we realize

that the main need of spelling is found in the written expression of thought. This being the case, only those words should be studied that belong to one's "active vocabulary," and that are also *likely* to be used in written expression. In order to meet this condition, teachers should not only make out *grade* lists, drawn from the sources mentioned, but also class lists as well; and teachers and pupils together should arrange for "personal lists," including words new or particularly difficult for particular pupils.

The recommended order of procedure for the mastery of words is (1) Meaning through context; (2) observation of written form with naming of letters in order; (3) copying; (4) writing from dictation, perhaps preceded by oral spelling; (5) oral spelling. The insistence upon the meaning of each word at the start tends greatly to make the study concrete. The word study, too, extending through much of the course, helps to give the subject a real content of interest.

### Organization

The importance of association is not overlooked, as is shown above, in the combined use of the ear, eye, voice, and hand in the mastery of word forms. A small number of rules is taught; the grouping of letters into syllables, the observation of common phonic elements, and the grouping of words according to common stems, prefixes, suffixes, and as synonyms—all show attention to organization. But the most important grouping of all, i. e., in actual sentences full of interest, is partly overlooked. While words are *approached* in their setting, there is little reference to reviewing and testing them in actual sentences. Since spelling is mainly used in written work, the form of the word needs to be associated with the muscular movements of the hand, and it wants finally to be reproduced while the attention is largely directed to the content of what is written. For these reasons the real test of spelling is found in writing interesting sentences from dictation, and in spontaneous written expression. The endpoint in spelling practice, then, is not oral spelling, nor written spelling in lists, but written sentences, or paragraphs.

### Relative Values

The syllabus recommends the *teaching* of words rather than the mere testing of ability to spell them. That is a very desirable distinction. It also emphasizes the importance of attention to misspelled words. But, unfortunately, its suggestions about how to present new words are altogether too limited; beyond question they should be presented with the same care that topics in history or arithmetic might be presented, particularly in order to awaken thought and to avoid wrong first impressions.



Suggestions also about how to correct misspelled words are almost wanting, although that should constitute a prominent part of the study.

### Initiative

One important part of any plan for teaching spelling consists in provision for self-help on the part of the pupil. Word analysis is one part of any such provision, and that is made prominent here. The learning of some rules is a second means; and that is included. The use of the dictionary is a third means. But it is surprising that the use of the dictionary is first mentioned in Grade 6A, while very many schools elsewhere take up that task in Grade 4A. Why should it come so late in New York City? Also, the value of the proper enunciation of words as an aid to their spelling seems slighted throughout the course.

On the whole, the curriculum in spelling is reasonable in amount, and both its content and the suggestions in the syllabus about method free it from excessive formality—which is a decided merit.

### d. Music

#### Provision for Motive

The course of study in music in the elementary schools calls for rote singing from Grade 1 through Grade 4A. This plan gives an opportunity to supply the children with musical experiences that they would be unable to have if they were dependent on what they could read.

But no guidance is given by example, or by titles, of the kinds of songs, or of the particular songs, to be used. Considering the fact that music, like language, is a product of our social life, and that the child's early musical experience establishes his comprehension of and taste for music in the same way as his early study of literature establishes a comprehension of and taste for literature, it would seem to be of the highest importance that the musical selections which the child learns by rote should be not only of a character to please him at the time, but also of classic quality. In fact, it is the proper awakening of the pupil's feeling for *good* music in these early grades that constitutes the most fundamental part of his musical education. Music, like language, interprets the social and physical world about us. In the choice of songs in relation to seasons, festivals, social events, and occupations, there is supplied a strong motive for the use of the songs. But so long as no suggestive lists of songs are made, and principles of selection are wanting, there is serious lack of guidance.

This is all the more evident when one reflects that the difference in the ages of the pupils, even between the first and fourth grades, requires much variety in the choice of materials; and, while no list should be any more universally accepted than is a list suggesting what would be

read for literary purposes in the readers that are used, yet one of the main functions of those who plan language courses and readers is the selection of the materials.

It might be said that this task is accomplished in the music readers. But three or four years of more or less rote work in music precede any extensive reading ability in that subject, so that books could be of little use during these early years. Also music, even more than language, depends for its effectiveness upon its character and the style in which it is rendered. Hence, the choice of materials should have been indicated with more than the care employed in the choice of literary selections. There are classic songs for children like some of the Mother Goose melodies, as well as those of more serious types like Stevenson's verses put to music. Considering the flood of weak music that is written for children, as well as the number of bad adaptations, guidance in the choice of material is imperative.

Reference to the importance of the style in which the rote song work is done brings up a further reason for care in selection. Owing to the important fact that the child's quality of voice, his inflection and articulation tend to act automatically in response to what he clearly feels, the rote song that really expresses his interest becomes one of the most important means for developing good tone and expressive rendering. To be effective, as in the case of language, the thought expressed must appeal to him. Yet neither the course of study nor the syllabus that accompanies it has anything to say on this score more than that the tone must be sweet and the songs must be well rendered.

The course of study follows the same plan with reference to the reading material for the later years as it does with reference to the rote song work, i. e., it makes no effort to define or suggest good materials. That the readers contain many valuable selections there is no doubt; but there is no doubt either but that they contain many that are poor. Some guidance was necessary here, also.

In omitting extensive and helpful suggestions, therefore, as to desirable materials, the curriculum and syllabus fail, most seriously, to provide properly for motive.

### Consideration of Relative Values

In considering relative values, we are chiefly interested here, as in early reading of literature, in the extent to which the formal side of the work is subordinated to the thought and feeling.

Turning to the use of the rote song for purposes of teaching the tonal relationships necessary for sight reading we find that, while this idea is suggested in the syllabus, no provisions for carrying it out are made; hence this live approach to the technical work is lost sight of in the classroom in a merely formal presentation. In the first grade, it is true, the suggestion is made that the scale should be learned as a song;

but this rote song basis is practically omitted, and the entire attention is devoted to the practice of intervals, dictated by number. As such independent intervals do not form musical movement any more than single letters, or even words, form literary thought, the effect of such interval practice resembles more the earlier methods utilized in reading when the attention of the pupils was directed first to the letters, then to the words, and finally to the combination of words, in a phrase. It is true that the organization of the work in music, along the line which was followed by teachers of reading years ago, is carried out with extreme care and thought. But since the principle upon which such music teaching is based has not only long since been discarded; and, also, since the success of the new method in music has been well established, it is unfortunate that the syllabus does not indicate by its scheme of study the appreciation of this new approach to the very difficult subject of sight reading of music.

Again, granting the great importance of drill in sight reading, both in reference to the practical result of being able to read music and to the musical intelligence that can be developed by such work—thus enlarging the sphere of possible musical appreciation—it must be borne in mind that a very large proportion of the pupils will make very little use of their music-reading ability. What is of prime importance throughout the elementary school, therefore, is that good standards of taste be established both for the music and its effective rendering. Consequently the adequate rendering of good selections, not only by the class but individually, should be the end toward which pupils and teachers should strive, and in this accomplishment standards of judgment both with reference to the composition and its rendering should be developed that would be of the highest practical value in improving and strengthening the taste of the future citizen for good music. Unfortunately in the course of study the emphasis is placed upon book work increasingly through the grades, with reference to the ability to *read at sight*. In fact, one might say that this is practically the only standard held up.

The music as planned, therefore, is peculiarly technical. It allows the formal side to be uppermost in the earlier years—as in the old style of reading—and it makes technical skill the final aim. The ideals that the pupil gets are in the direction of sight-reading skill, and this unfortunately with little reference to beauty of tone or expression.

### Provision for Individuality

Work in sight singing from the book is commenced in Grade 3B. It is natural that in this and the following two years there should be a pretty strong emphasis on the technical side of music reading. Such work requires to a peculiar degree the ability to translate arbitrary symbols presented to the eye into musical ideas. The ability to look ahead and coördinate what is coming, so as to know how to render the passage,

is similar to that of intelligent word reading, except that, in music, it is much more complicated. To make this rapid coördination possible, intensive drill in the comprehension of what the staff calls for in its sound equivalent and tonal relationships is necessary.

While accuracy and speed are essentials in such drill, the most important consideration is that the individual pupil should do the work. It is not merely class knowledge and skill that are wanted, but a knowledge and skill of the individual. As a help to the establishment of this individual responsibility, it was highly important that the syllabi should show clearly the order in which the various tasks should be undertaken—that, indeed, they should establish a *standard sequence*—so that ordinarily no pupil should be allowed to proceed to a given topic before reasonably mastering those preceding it. But the course of study and its accompanying syllabi, while giving minute directions as to the particular keys, intervals, and manner of doing, set nowhere such a standard for any grade. Accordingly, there is a tendency to hold pupils for no particular results. Those children that need the greatest care and attention are carried along by the more musical ones, and they pass on from grade to grade without even being conscious of what they don't know.

The peculiar importance of this point is seen in the fact that, in music, more than in any other study, the work is done in concert. The rhythmic nature of music encourages that method. A course of study, while not demanding identical work from all pupils, should demand that a few of the fundamental facts in their logical sequence should be known by every child who is intelligent enough to do the work of the grade. It should not be possible for nearly half of a class entering a girls' high school to be unable to give the pitch names of the staff, as was recently the case. It is one thing to respond to dictation work, or to sing a passage with the class as a whole, and a very different one to do the same thing individually.

It was the duty of the syllabus to have checked the tendency toward concert work alone, not only by suggesting a certain sequence that each pupil should necessarily follow, but also by directly emphasizing the importance of individual singing. In omitting these precautions they have manifested peculiar disregard of individuality.

### Organization

This demand for individual accomplishment on the part of the pupils could be greatly stimulated if, in the organization of the work, definite requirements could be made of all those who plan to teach. A very large number of the girls who continue their study beyond the eighth grade expect to teach eventually. To know the requirements in music would influence their work even down to the seventh and eighth grades, and it would materially help the work in the high and normal schools. Unfortunately, the music in many of the high schools, owing to the

difficulty of arranging programs, obliges students of different years to sing in the same section or class. This makes all orderly work impossible, and, coupled with the lack of any definite requirements either as to application or scholarship, such as are expected in other studies, tends to reduce the singing to a mere entertainment exercise. This attitude in the high schools is reflected into the grades.

The dignity of music demands that a more definite organization of the whole field be established, and such organization should be most clearly revealed in the curriculum and syllabi.

To sum up, it is suggested, first, that both the motive for singing and the style of rendering songs would be greatly helped if classic selections were listed appropriate both for the grades and the schools as a whole.

Second, that proper attention to relative values requires that technical knowledge and skill be more subordinated to school singing and musical taste.

Third, that the individuality of pupils be more fully provided for by much more attention to individual attainment in contrast with concert work, or class attainment.

Fourth, that the subject matter be better organized so that there may be far more definite requirements for each grade, both as to application and scholarship.

#### e. Nature Study and Elementary Science

##### Provision for Motive

The syllabi for nature study of Grades 1 to 5, and for the elementary science of Grades 7 and 8, are dominated by the scientific point of view, which properly prevails in the later study of science in college. The apparent motive is to teach the facts of systematic science, and there is no provision for selection and organization of materials in line with the widely accepted view that the motive of nature study should be relation of natural things to human life.

The first illustration in support of this criticism is taken from the syllabus for nature study (page 15):

"It should be clearly understood that no class is expected to study all of the topics in nature study that are suggested in the syllabus. *The pupils should be taught to recognize and to name all of the subjects under each caption*, but only a few topics should be selected for *systematic observation and study*. When other material suitable for the work is more accessible, it may be substituted for that mentioned in the syllabus."

Note the emphasis upon "learning names" and "systematic observation." But there is no suggestion of relating the study to human life, or even of the dynamic point of view, which requires interpretation of

structure in terms of function. This clearly indicates the viewpoint of science rather than of nature study.

The motive of organized science is as prominent in the syllabus for elementary science as it is in college courses. In fact, the syllabus for elementary science is in outline a close imitation of a college laboratory course in physics. In support of this statement, a few quotations will suffice:

"Generalize results obtained in (experiments) 16, 18, and 19 in form of an equation. Give problems applying this equation. By diagram show that distances traversed by force and load are proportional to their lever arms, and therefore force multiplied by distance-force-moves equals load multiplied by distance-load-moves." (Page 33.)

("The teacher should here develop very simply the ideas of molecular structure of matter and of heat as a form of molecular motion.") (Page 42.)

"(Discuss the three modes of propagation of heat illustrated by experiments 108 to 119.)" (Page 45.)

Such a course is so entirely out of line with elementary education that a complete reorganization is desirable. And the course for Grades 7 and 8 should not be reorganized as elementary physics, but as advanced nature study and introduction to *general science*.

That is, the subject matter should be selected with primary reference to the pupils' interest rather than from the viewpoint of pure science.

#### Attention to Relative Values

The scientific and encyclopædic points of view being so dominant, relative values have necessarily received little consideration.

The very important points included under "Natural Phenomena" are omitted from the A divisions of Grades 1 to 4.

Probably no other topics are so usable and useful in all schools as are these inorganic nature-study lessons. It would seem that the same broad subjects in this field should be included in the work for the two divisions of each grade, and that optional topics might be suggested for study in the more advanced division.

The present "elementary science," limited to physics, excludes many elementary ideas of chemistry that are more important for grammar schools than are many of the topics of physics outlined here. In order to find time for the chemical experiments needed, the present outline of physics, subdivided into gravity, mechanical powers, mechanics of liquids and gases, magnetism of electricity, sound, and heat, might well give way to an outline of chemico-physical nature study based on daily life and interests.

Further suggestions in regard to provision for relative values follow in discussion of organization.

### Organization

There is need of some attempt at organization of the course of nature study, for most of the topics now stand as isolated as did those of the former object lessons. In the previous discussion of motivation and relative values also it was suggested that the entire course of elementary science should be reorganized from the nature-study point of view in place of the present imitation of systematic science.

Trees, birds, insects, and many other assigned topics need not be studied entirely as isolated specimens; but the studies should be grouped together so as to bring out the human interest in some larger problems, such as conservation of forests and bird life, influence of insects on agriculture, the usefulness of animals and plants to man, the development of individual animals and plants. Such organization is largely applicable to grades above the third. A limited number of trees and birds may profitably be considered in each primary year, but in grades above the first three there might well be intensive series of lessons which bring together the main facts about questions of general interest.

A prominent part of the nature study ("elementary science") of the 7th and 8th grades should center around hygiene, which offers splendid opportunities for introducing the most useful ideas of elementary chemistry and physics. Moreover, the inclusion of hygiene (with the necessary physiology) in the "elementary science" will place that important study of the human body on a laboratory or observational basis, which it cannot now have in its present relation to physical training. Probably the weakest point in the entire course of study for nature study and elementary science in the New York schools is the complete separation of hygiene from the observational studies of natural things which the best teachers of the subject select for illustration. For the sake of better teaching both of hygiene and of the introduction to science ("elementary science") the two subjects should be united in an organized course.

The present syllabus of nature study offers little opportunity and less encouragement for correlation with other subjects.

Much of the inorganic nature study, including the weather studies of Grades 1 to 5, should be arranged as preliminary to, or correlated with, geography. Still other inorganic topics, such as air, water, and heat, need to be related to hygiene.

In the higher grades, also, the relations of this field to the physical aspects of geography, to household arts and industrial art, should be clearly stated in the syllabus.

On the other hand, the recommendation that "stories, fables, songs, and other literature pertaining to objects studied should be read" (Syllabus, page 14) leads too easily, in practice, to the substitution of reading for observation, which is fundamental in nature study. The nature-study time should hardly be used for reading "stories, fables, and songs."

These are important for correlated English lessons; but have no proper place in nature study. The only legitimate reading for the nature-study period is that which helps with the observations or gives supplementary facts that are scientific and in harmony with the most approved aims of nature study. All other reading, such as stories and fables, should be judged and selected from the viewpoint of English, and read in the periods assigned for that subject.

In brief, every study must have its own purposes, and all subject matter finding a place in a study should be chosen primarily with reference to the purposes of that subject.

The omission of nature study from the sixth year makes a break in a continuity which ought to extend from Grade 1 to Grade 8, inclusive. This is not serious with the present syllabus, for, as indicated above, there are at present no obvious attempt at continuity and little correlation; but, in a revised syllabus, which attempts continuity from Grade 1 to Grade 8, there should be regular nature study planned for Grade 6.

#### **Provision for Exercise of Initiative**

So far as the teacher is concerned, self-expression is very much circumscribed by (1) the advised formula method, and (2) by the prescribed materials for study.

(1) The method for teaching nature study prescribed at the bottom of page 15 in the syllabus (quoted in the foregoing under motivation) is an exceedingly limited formula, tending not only to insure that all topics will be treated alike, but also that they will be treated very superficially. The formula for teaching elementary science has the same tendencies (page 29).

(2) The selection of materials for nature study in Grades 1 to 5 appears to be based almost entirely upon the kind of nature study adapted to suburban or rural regions; and there has been almost no planning for the city schools. It is generally admitted that even in the most congested city districts there should be some nature study based on materials imported from rural regions, and hence not drawn from the environment of the school children; but the present syllabus is too exclusively based on such foreign materials.

However, the widely different environmental conditions in Greater New York make a uniform syllabus of nature study for all schools especially undesirable and unsatisfactory.

Nature study in its best interpretation deals with nature in relation to daily life, and this obviously demands wide differentiation between nature study for city and country schools, and also for schools in different parts of the city itself.

More than that, the ability of teachers to give instruction in nature study varies more, even, than their ability to teach music. A single course of study in nature for a great city, therefore, based on the as-



sumption that all schools can have much the same materials for study, and that all teachers can teach it, ignores the plainest facts; and, if required, it must lead to results that are at least questionable. If a classroom teacher were to show as little regard for individual conditions as this curriculum shows, she would be condemned outright as lacking the first elements of a real teacher.

The part of any curriculum in nature study that can be properly required of all the schools is very small indeed, consisting of such topics as opening of buds, weather studies, common vegetables and fruits, germination of seeds, and a few very common wild flowers. Beyond that, a series of well-organized topics might be only suggested, from among which teachers might select according to availability of materials, environment of the school, possible correlations, ability of the teacher, and interest of pupils.

And even then not very much is likely to be accomplished in many of the schools until ample provision is made for supplying schools with desired materials, just as has long been customary in connection with the high schools.

As the syllabus now stands, no teacher deserves censure for omitting all nature-study observations, for there is little more justice in expecting teachers to get the necessary materials than there would be in expecting them to provide pupils with writing materials and books. The many teachers who, working with the present syllabus, are providing the materials and conducting creditable lessons, deserve the highest commendation for giving to the schools what, in all justice, should not be expected of them.

Considering the fact that nature study is a new subject to most teachers, and that few normal schools give adequate preparation for its teaching, the syllabus should by all means be supplemented with some approved lesson-plans on typical topics, notes on materials, and specific references to books, which should be in school libraries.

In brief, we find this course in nature study and elementary science ignoring interest on the part of young people, disregarding relative values among facts, merely enumerating topics rather than offering an organized outline—particularly for the first five grades—and paying the minimum attention to individual conditions.

#### **f. Arithmetic**

##### **Organization of Subject Matter**

The organization of the course of study is relentlessly logical. Thus the addition tables of 1's and 2's are presented in the 1A grade; the tables of 3's and 4's in the 1B grade; and the remaining tables of the 5's, 6's, 7's, 8's, and 9's are completed in the 2A grade. The multiplication tables through  $5 \times 9$  are taught in the 2B grade, and the remaining tables through  $9 \times 9$  are taught in the 3A grade.

There is rapid drill on the tables already learned in the 3B grade, and in the 4A grade the learning of tables is continued through  $12 \times 12$ . The same careful grading is planned in the study of "bills" in each grade from 4B to 6B. The syllabus contains the following statement for the 4B and 5A grades: "Bills made out and receipted; the model should have date, name, address, and business of the maker; name and address of the debtor." In the 5B grade the terms debtor and creditor are to be properly used and defined; and in the next two grades bills are to be paid by checks. The same tendency toward logical arrangement is shown in the teaching of dry measure. Pints are taught in the 1B grade, quarts and pecks in the 2A grade, bushels in the 3A grade, and contents of bins in bushels in the 6A grade. The cases here given are representative.

Such logical organization has two evident advantages. In the first place, the grading is so even that the work assigned to each of the several grades is about equally difficult for the children concerned. In the second place, teachers are not in doubt regarding what the pupils have had in the previous grades, or what is expected in their own. It is very convenient for superintendents and principals also when they desire to obtain a quick estimate of the work of the teacher.

But this arrangement of subject matter is just the one that educators have been trying to escape during the last twenty years. Its defect is that, while intended for children, it is planned entirely from the viewpoint of the adult. That is, it is coldly logical, where it should be psychological, or adapted to child nature. Consider the addition tables, for instance. According to the course, the pupil is expected to spend a few weeks on adding by 1's and 2's before proceeding to 3's. But if he has any need at all for number his requirements are not limited to adding by 1 or 2. The sum of 4 and 3 is likely to be required as often as the sum of 8 and 1, and the former combination is no more difficult to learn than the latter.

Likewise, the facts connected with dry measure are not best gained by learning first the pint, then the quart and peck, and last of all the bushel, with a pause of a few months after each effort.

That young children use number extensively outside of school cannot be doubted. But their approach to the subject is through scoring in such games as dominoes, bean bag, and shuffleboard; through measuring, in connection with the making of articles out of paper, cardboard, string, and wood; through buying food in small quantities, etc.

This being true, if a division is to be made in the learning of the forty-five combinations, the basis of the division should be that of the magnitude of the sum or product, as suggested by observing how children of a given age actually use number.

Any one who has observed little children, with toothpicks in hand for illustrative material, laboriously going up and down the tables, saying 5 less 1 equals 4; 5 less 2 equals 3; 5 less 3 equals 2; 5 less 4 equals 1 must have felt sorry for the little tots. That is too systematic for any person but a philosopher.

It is the same old question of "rigid sequence" that is slowly being rooted out of the industrial arts and the kindergarten. It used to dominate in the readers, but no longer. Such sequence is resorted to only when one has forgotten one's childhood and lacks the higher viewpoints of modern education.

#### Attention to Relative Values

The planning of a course of study is a severe test of one's conception of the relative worth of different facts. As long as the disciplinary conception of education endured, the selection of the various topics in arithmetic depended very largely on their fitness as means for training the mind in such virtues as love for the truth, accuracy, perseverance, and the like. The science of number was then more emphasized than the art of computation, and almost any kind of subject matter was admitted.

The results that were obtained by this method were not satisfactory, and there was an insistent demand for a mathematical curriculum that was more closely connected with the affairs of life. In many quarters the schools attempted to meet the difficulty by organizing a course of study in arithmetic which was utilitarian in the narrow sense that it attempted to make the pupil efficient in the counting room or store exclusively. Emphasis was placed on the art of computation, on business forms, and short methods. That also failed to satisfy.

At present there is a demand that is more important than either of these two. Society recognizes that not every pupil in the school is to become a clerk or an artisan, but that every one is and will continue to be a member of a social organization in which savings banks; fire, life, and accident insurance; and corporations of various sorts, are important factors. The success and happiness of an individual will depend much on an understanding and appreciation of the various institutions with which he must deal. This conception of the needs of the individual has brought about a demand for a practical treatment of arithmetic in the elementary school. This standard for the selection of subjects emphasizes the applicability of what is to be taught to the actual affairs of life, a provision that will add life to the subject, and thus give a special guarantee of the mastery of its fundamentals.<sup>1</sup>

Partial payments, highest common divisor, cube root, compound proportion, and like subjects which are now taught in the city, have no place in such a course. Other subjects, such as mensuration, deserve treatment only to the extent to which their limited utility entitles them. Most important is the inclusion of such subjects as come in close touch with the affairs of life. The work of a certain sixth-grade teacher in a private school in New York may be mentioned as indicative of this broader conception of arithmetic. During the visit of the fleet of war vessels the pupils of this grade wrote a letter of inquiry to the officer of one vessel concerning the amount of food required by his crew. This

<sup>1</sup> Addition, subtraction, multiplication, and division of whole numbers, simple fractions, both common and decimal, percentage, and its simplest applications.

information was furnished and became the basis of some very instructive lessons on the cost of food, as well as material for effective drill in computation. An article in a magazine setting forth the relative expense of delivering goods by automobile and by teams gave the opportunity to teach intelligently the meaning of percentage.

The New York course of study gives no indication of appreciation of values of this sort. The various topics to be studied in each grade are printed in order without suggestion along this line. The syllabus does indicate values in certain cases; i. e., special emphasis is laid upon certain work in each grade; but that is an emphasis that requires only special drill.

There is, however, a paragraph in the introductory note of the syllabus that is of interest in this connection. It runs as follows:

"Numerical relations may be found wherever the mind seeks them; hence problems may be derived and should be derived from the life of the home, the school, the farm, the laboratory, the factory, as well as from the shop and bank. The limitation of problems to transactions in dollars and cents tends to give practical arithmetic a purely formal and disciplinary character; on the other hand, excursions into other fields of human activity, while sacrificing nothing of the disciplinary value of the subject, give it a varied and interesting content. Problems may be classified as simple, or those involving only one operation; and as complex, or those involving more than one operation."

This sounds well; but its value depends upon how seriously it is followed up later. But it is not followed up; indeed, it is to some extent even opposed.

In the 6A grade the statement for problems is "practical problems involving denominate numbers applied to every-day business usage." The measurements for this grade, however, include the following:

"Contents of bins in bushels; memorizing 2,150.4 cu. in. in one bushel; contents in gallons; memorizing 231 cu. in., one gallon. Reduction of contents in bushels and gallons to cubic measure. Surfaces of rectangular solids. Comparison of the units of weight used by the jeweler with those used by the grocer; memorizing 5,760 gr., one pound Troy; 7,000 gr., one pound avoirdupois."

It would be difficult to think of any subject of less practical importance, when applied to every-day business usage, than the comparison of Troy and avoirdupois weights; and the utility of each of the other measurements named above is at least open to question.

The syllabus calls for the consideration of the weight of potatoes, wheat, and oats without memorizing; but the weight of a gallon of water is to be memorized. As a consumer the pupil will probably have occasion to buy potatoes, and possibly wheat and oats; but the probability of his using the knowledge that 1 cubic foot of water weighs 62.5 pounds is remote. Furthermore, although throughout the syllabus much is said regarding business application of number facts, not until the 8A

grade is any attention directed to those institutions that are vital factors in the determination of the values of arithmetical facts for the elementary school. In this grade business forms and usages are studied, and the function of savings banks, banks of deposit, and other corporations is briefly explained. If the syllabus is serious in the desire to connect arithmetic with life, why should it not have led the way by giving examples of such connection in each grade? The explanation seems to be that, after all, it is the science of arithmetic that the authors have in mind. Arithmetic might be used to reveal the quantitative side of the life about us, in industry, commerce, business, and city government, in particular, just as fine art reveals the æsthetic side, and literature the moral side. But the science of arithmetic may be as unrelated to practical affairs as the science of grammar to daily speech; and the syllabus tends to favor this isolation.

Further work of the 8th year, besides the business forms just mentioned, is the mensuration of plane and solid figures, such as the areas of parallelograms, trapezoids, and regular polygons; the convex surfaces of pyramids, cones, and spheres; and the volumes of pyramids and cones. Other figures, such as the rectangle, triangle, and circle, are also measured. Certainly the mensuration of such forms as were last mentioned is far more important than like operations with such unusual figures as those given before, yet there is nothing in the course or syllabus to indicate that any difference in values is recognized. One statement in particular regarding the problems for this grade gives a clue to the conception of the relative values of the business forms and the mensuration. It says, "problems should involve the indirect relations growing out of the rules for mensuration, as: If the area of a circle is 314.16 square inches, what is the radius? Problems giving rise to simple equations involving two unknown quantities." Such topics as expenses and support of the city government and the cost of furnishing a house are not once mentioned. If relative values had received careful attention, not only would these last topics have been included, but many other topics now included would probably have been eliminated. For example, the least common multiple and greatest common divisor as definite and independent topics (now required in 5A); compound and complex fractions (in 5B); problems in denominate numbers involving three and more successive units (6A); the whole of numerous tables in denominate numbers, where only some of the facts are really wanted; the metric system (in 7A); and true discount (in 7B).

### Provision for Motive

The foregoing discussion of organization and values leads to a consideration of motivation. The modern conception of the importance of interest as a factor in the learning process is leading the school to recognize the pupil's right to view matters in the light of his own expe-

riences. To be of value, subject matter must be sufficiently near to the child's life to present problems which he feels it is necessary to solve. Thus it happens that plays and games and household accounts have a legitimate place in the arithmetic work.

The syllabus provides in a very mild way for motivation by having the children learn to count by using objects, sounds, and motions; by reading time by the clock; by making change; and by stating that the *problems should be practical*. But on the whole it makes little provision for the pupils' motivation. The devotion to rigid sequence, as discussed under organization, indicates this.

Much that was said concerning values would apply with equal force here. Although pupils are to learn a considerable number of business fractions, and their percentage equivalents, there is no indication that these facts are approached in any concrete setting, or grow out of any need felt by the pupils.

There are two signs of want of motive in arithmetic: First, an excessive amount of drill; second, inability to solve real problems. A very large part of the teaching in this subject consists of drill, because of the want of fresh ways of approaching and reviewing the facts. And it is not at all uncommon to find classes that are able to do remarkably rapid and accurate work with such subjects as cancellation and the finding of the highest common divisor, when they are unable to do simple problems that involve actual situations. Such classes have been drilled until they know just what is expected of them in the more or less formal processes, but real problems are so remote from their school experience that the terms employed tend to confuse rather than make concrete. The curriculum and syllabus exert no influence in opposition to these tendencies.

Mention has been made of the constructive and inventional exercises found in the 7A and 7B grades. In the introductory note three claims are made for this work: It has educational value, prepares for the work of mensuration in the next grade, and gives a knowledge of the constructive principles employed in mechanical drawing and construction, and in shop work. Even if the first claim be granted, it provides no motive for the pupil to do this work. There is lacking even the stimulus that is operative in formal geometry, where the consciousness of finding an invincible proof is a source of satisfaction.

Of the problems of mensuration in the next grade, very few—as already shown—have any practical value in every-day life; and even these are more effectively and economically learned by memorizing when the need arises than by logical reasoning when no motive exists.

Finally, the claim that this work prepares for mechanical drawing and shop work raises the question as to whether this type of work belongs to arithmetic or drawing. The fact that it does find a place in the drawing seems to show that there is where it belongs. But if the motive is found in its relation to shop work, and the latter is taken only by the

boys, then why should it be required of both boys and girls? The fact is, it seems as if little value were really attached to these constructive and inventional exercises. They, together with much of the mensuration, impress the critic as padding between the sixth year and the eighth so as to have a "full course."

### Provision for Exercise of Initiative

Under the heading of "requirements" the introductory note states that "both the course of study and the syllabus provide for the minimum requirements. Pupils capable of more rapid advancement should not be confined to the limits set in the syllabus for the grade."

The purpose of a minimum course of study is usually understood to be to make requirements so small that both teachers and the brighter pupils will have opportunity to follow their own bent to some extent. But the course is so full that teachers generally believe that nothing more could be undertaken in the time allotted to the subject.

The syllabus, at any rate, is almost destitute of suggestions as to what might be used to supplement the required work. The expressions "etc.," "exercise similar to," and "for example" each occur once. Moreover, the possibility of initiative depends much on an understanding of the aims and purposes of the activity involved. As might be expected from its failure to recognize values, the syllabus does not state aims or purposes except as they are implied in the claims for the constructive and inventional exercises quoted, and in the statement that "special importance is attached to the thorough mastery of the combinations in addition, subtraction, multiplication, and division." Intelligent initiative on the part of teacher or principal under these conditions is extremely difficult.

Why should not the syllabus have offered numerous suggestions, if this was really to be a minimum course?

The most important factor in preventing initiative in this study is the widespread belief that teachers are to be judged, and their standing determined, by the showing their pupils make when tested in conformity with this course and syllabus. In one school the head of department has distributed mimeographed copies of problems that are to be done each month, and a careful analysis shows that they are all selected in accordance with the statements found in the syllabus.

The special work of the 5A grade is common fractions. This work is described as follows: "*Oral.* Special attention to business fractions, e. g., cost of articles at  $12\frac{1}{2}$ c. ( $\frac{1}{8}$ ), at 16 2-3c. (1-6), at 33 1-3c. (1-3), at \$1.12 $\frac{1}{2}$ , at \$1.16 2-3, at \$1.33 1-3. *Written.* Easy fractions. Least common multiple developed and applied in addition and subtraction of common fractions; greatest common divisor developed and applied in reduction of fractions to lowest terms; cancellation developed and applied in the multiplication of fractions. Definitions reviewed."

With such an abstract outline as a guide, with the knowledge that the

instruction will be rated on the speed and accuracy in exactly these topics, and with no suggestions as to broad purposes within whose range there would be some possibility of choice, what prospect is there here of any initiative on the part of either teachers or pupils?

One thing that might have been done is suggested by the course of study in another city, which contains this statement: "The chief difficulty that the pupils have in acquiring the fractional processes is to interpret clearly the unfamiliar and so perplexing forms and terms used. The problem of the teacher, therefore, is to enable pupils to interpret these conventional symbols in terms of their own experience."

Here the teacher is informed that there is something else to watch besides mere processes, namely, the many ways in which these processes are called for and used in life. That suggests the desirability of introducing the pupils into actual examples of this sort, such as the pupil might himself meet, in which undertaking a large degree of originality may be shown by the teacher, and by the pupil as well.

The work of the 8B grade is a general review of the mathematical course. The syllabus states that "the nature of the review is left in the greatest measure possible to the good judgment of the principals and teachers. Generally it should be planned with a view to correcting existing defects in the mathematical work of the pupils, and should include daily practice in the four fundamental operations with integers, common fractions, and decimals." This might seem to invite initiative, at last; but the fact is that many teachers assert this to be as dead as any part of the whole course, because a very definite test as to skill and accuracy is known to await them at the end of the term, so that the work, both in kind and quantity, is prescribed for them in full. Here, again, the syllabus might have protected itself against such a charge by requiring that the unity of certain parts of the course, as revealed by underlying principles, be established, and by suggesting other new and broad viewpoints. But that is not attempted.

These, then, in brief, are the characteristics of the course and syllabus: They stand for a rigid sequence of subject matter, which ignores the grouping customary in both child and adult life; they contain many things of doubtful value—in fact, so many that, if they were all omitted, the course in arithmetic might probably be reduced from eight to six years without serious loss; they make practically no provision for approaching number through its relation to practical affairs, although they suggest that it be so approached. And, by their omission of reference to workable aims and principles, as well as by the abundance of requirements, they make it extremely difficult for teachers or pupils to exercise initiative in this field.

#### **g. Drawing, Construction Work, Cooking, and Sewing**

The program includes:

Drawing—through the eight years for both boys and girls. Con-



struction work—for boys and girls undifferentiated through the first two and one-half years.

Boys—Cord and raffia work through the third year, and shop work through the seventh and eighth grades. All hand work for boys during the fourth, fifth, and sixth years is included in the drawing.

Sewing—for girls from the second half of the third year through the sixth year. In schools not having cooking advanced sewing is given in grades 7 and 8.

Cooking—for girls in grades 7 and 8 in most schools.

### Provision for Organization of Subject Matter

In brief, the organization of these several subjects may be summarized as follows:

#### Drawing

The work is almost wholly of two types: representative and mechanical. The drawing of commonplace objects, singly and in groups, together with quite a bit of copying as a method of developing technique, and the representation of furniture and interiors for perspective, makes up the chief work in *representative* drawing. In grades 7 and 8 there is added a great deal of work in constructing geometric forms, and in making working drawings for hypothetical projects in wood or metal. There is no direct relationship between drawings made and projects actually constructed in a shop or elsewhere. The sequence of work is determined upon a purely technical basis.

#### Constructive and Shop Work

The constructive work of the first two and a half years is intended to "develop in the young child the power of motor control and co-ordination." Subject matter is limited almost wholly to the ideas involved in the simple processes of knotting, looping, weaving, and stitching in cord and raffia. A very small quantity of work is done in paper or cardboard. Very simple and meager opportunity is given for choices in color and design.

In shop work, grades 7 and 8, the work is planned on the basis of a technical sequence in construction, chiefly of joints. Projects are chosen which provide for a good sequence in the use of the common wood-working tools. Technical efficiency is the chief endpoint. In the new course, just developing, groups of models for each particular element of technique are provided, from which teachers may select as best fits their own needs.

#### Sewing

In the sewing the sequence is definitely technical. The work throughout is arranged in two parts—technique first developed through specific

"exercises," or practice pieces; and then application to some usable article. The "application" may not be made until a certain degree of skill has been attained in the "exercise." The chief endpoint seems to be efficiency in sewing as a process.

### **Cooking**

In addition to a sequence of work providing for a simple knowledge of the cooking of numerous types of food, and of food principles, the course covers simpler phases of housekeeping, laundering, care of the dining-room, table service, nursing, dietaries, home sanitation, and marketing. In all of these topics there is a pretty well-organized body of thought provided in connection with the practical work. "Thorough housekeeping and the making of a home" are offered as the endpoints toward which details are to contribute.

In all phases of work in this field, organization of material is on the basis of technical sequence. Technique is prominent over everything else, and the technical sequences, as such, are good.

Thought material related to tasks that might be expected to make a strong appeal to children is all relegated to *Incidental* Instruction, save in cooking, where it is specifically provided for. The relationship of principles to practice, also, is markedly absent save in cooking.

The several subjects are so completely isolated that they do not correlate with other subjects, or even with each other, where this would be especially desirable, as in drawing and shop work, or art work and textiles. There are occasional exceptions in the teaching, but these are not provided for specifically by the curriculum.

The curriculum is uniform for all districts—alike for those populated by the professional and commercial workers, and those populated by the hand workers in distinctly industrial neighborhoods. This of itself emphasizes the disciplinary aim and the technical sequence.

The organization, therefore, in all these subjects except cooking is planned almost solely on a mechanical basis, and correlation is omitted.

### **Provision for Motivation**

In drawing, sewing, cooking, and in all but the last half of the last year in shop work, the projects are rather definitely prescribed by the course of study, or by the officials of the department in charge. In shop work during the last half year any models are permitted which incorporate the constructive principles prescribed. Under the plan of groups of models from which to choose, now under development, more flexibility in shop work will be provided for the teacher; but this will not much affect the pupils.

In so far as the curriculum is concerned, motivation of the pupil is not considered as a problem at all, save as incidentally provided in the fact that children like activity and like to work with materials. The

problems undertaken are not their problems, but are prescribed for them. As the products made are theirs, they may exercise choice in the use to which they put them; but this is practically the limit to which motivation may apply. In drawing, working drawings are prescribed for part of the work in grades 7 and 8, but the drawings made are not of projects to be used in shops. "I would rather my boys had had no drawing at all than that which they now get in working drawings. It is a hindrance rather than a help. They have so many wrong notions about it that it would be easier to teach them from the beginning," said one shop teacher.

Assuming that the development of an interest in the industrial life about us is a great purpose in this field, just as a taste for reading is a great purpose in literature, the neglect of motivation in these subjects would be paralleled in literature if all the literary selections were made and arranged in sequence solely on the basis of their mechanical difficulties. While that plan would kill an English course, it would prove no more deadly in that field than in these.

#### Provision for Initiative

The provisions, already noted, for selection among a prescribed group of models, or selection without other limitation than that prescribed technical elements are included, permits of some choice in upper grades. But this is so very insignificant, as represented in the courses of study, that one may fairly say that it was not considered as a problem in making the courses. It is not specified *who* may make choices. Teachers may prescribe all of the work and fulfill the courses of study, not permitting any initiative on the part of children in the matter.

#### Consideration of Relative Values

The curriculum provides practically no opportunity for consideration of relative values. In the suggestions of the relationships of the work to life or of considerations of worths, these elements are relegated to a place entirely subordinate to technical processes. They are suggested as appropriate for "incidental instruction," which usually results in their omission. The very arrangement of work, as in sewing, exercises first, then applications—practice pieces, in which a certain standard of excellence is to be attained, before using the activity in any project—exalts the technical aim above all else.

#### Conclusions

From the standpoint of mere technical sequence the curriculum is well developed in all of these subjects. In cooking the course is also meritorious in a well-proportioned amount of thought content concerned with principles and the more intimate relationships of home-making.

On the other hand, the narrowness in organization, the failure to provide for motivation, for initiative on the part of either pupils or teachers, and the entire neglect of all values not inherent in technical processes and activities are all defects which reduce the work to a minimum in educational values. Nothing less than a complete change of viewpoint in the organization and development of the curriculum, in terms of both social values and child psychology, could do much to broaden the work as it ought to be broadened.

### **A. Geography**

#### **A Sample of the Curriculum**

As a sample of the course and syllabus in geography, fairly representative of their attitude toward the standards proposed, the work for the second half of the fourth year—called Grade 4B—is here reproduced in full. It is taken from the course of study dated 1911.

#### **Grade 4B**

##### **Course of Study**

**THE EARTH.** Daily and yearly motions; zones.

**EASTERN AND WESTERN HEMISPHERES.** The continents; their location; bordering waters; chief mountain ranges; great rivers; animal and plant life; peoples; chief countries; large cities.

Duties of citizens and public officials.

##### **Syllabus**

**EARTH STUDY.** Daily and yearly motions; the equator; prime meridian and zones studied from a globe and from a map.

**THE CONTINENTS.** Names; location and relative positions. Names and locations of the five oceans; North, Baltic, Black, Mediterranean, Red, China, Japan, Caribbean and Bering seas; Gulf of St. Lawrence, Gulf of Mexico, Gulf of Guinea, Hudson Bay, Baffin Bay, Bay of Biscay, Bay of Bengal; Appalachian, Rocky, Andes, Alps, Ural, Caucasus, and Himalaya mountains; Mississippi, Missouri, Ohio, Hudson, Columbia, Rio Grande, St. Lawrence, Amazon, Plata, Rhine, Volga, Danube, Nile, Kongo, and Yangtze rivers.

**ANIMAL AND PLANT LIFE.** A few of the principal animals and plants of the hot, cold, and temperate countries.

**PEOPLES.** White, black, yellow, brown, and red races.

**CHIEF COUNTRIES AND LARGE CITIES.** Names and locations of the United States, Mexico, Brazil, Chile, Argentina, England, France, Germany, Russia, Italy, Austria, Hungary, Spain, Egypt, China, Japan;

the City of New York, Chicago, Philadelphia, Boston, St. Louis, San Francisco, New Orleans, Washington, London, Paris, Berlin, Rome, St. Petersburg, Cairo, Calcutta, Hongkong, Peking, Tokio.

**GOOD CITIZENSHIP.** Street Cleaning Department. Collection and disposal of refuse; use of rubbish boxes; street cleaning; street cleaning leagues.

**Duties of Citizens.** To keep receptacles for garbage covered; to refrain from throwing papers, fruit skins, and other refuse into the street, or on the sidewalk; to refrain from obstructing sidewalks or thoroughfares, from throwing anything from windows, and from defacing walks, fences, or buildings.

**Health Department.** Medical School Inspector; school nurse; vaccination, contagious diseases; necessity for quarantine; birth records and certificates; inspection of milk and other foods; sanitary supervision of water supply; disinfection of houses.

**Duties of citizens in regard to cleanliness of body, of clothing, of dwelling, of streets; immediate report of cases of contagion; respect for Health Board notices; anti-spitting laws; child labor laws; requisites for obtaining an employment certificate.**

(See Introductory Note in Civics.)

#### **Relation of Subject Matter to Purposes and Initiative of Children**

Take, first, the two standards together that test the extent to which the interests, and the need of initiative on the part of the children—namely, the child's point of view—have influenced selection of subject matter and suggestions on method.

Confining our attention to the geography proper in the part reproduced (i. e., omitting from consideration at this point the part on Good Citizenship), we find nothing suggesting any consideration whatever of children's interests. While it is customary among progressive teachers of geography to arrange their facts around questions or topics that appeal to children, there is no indication of any such tendency here. Nor is any such tendency manifested elsewhere in either the curriculum or syllabus for geography. The point of view is completely that of the adult, the question being, What geographical facts will some day be needed, no matter how unrelated they may now be to the learner?

Provision for encouragement of initiative of either teacher or pupil by directing attention to the broader aims and principles of instruction, such as the causal idea, that give the key to method; or by proposing different sequences that require choice; or by urging the importance of approaching each topic as nearly as possible from the point of view of the particular children at hand, is just as strikingly lacking. Even proposals for the variation of home geography according to variations in environment are almost totally wanting. On the other hand, fixed sequence and uniformity of approach for all children seem to be the things desired. As

evidence of this statement, observe the suggested plan of study, as follows:

"In studying the continents, as wholes, attention should be directed to their comparative sizes (North America being taken as the unit), relative positions, their general contour, their great mountain systems, their great rivers, their large seas, gulfs, and bays, and their important neighboring islands. Then should follow the main political divisions and the positions of important cities.

"In studying a country the following series of topics, as far as they may be applicable to the country under consideration and in the grade in which the lesson may be given, is suggested:

- "1. Location as determined by latitude and longitude, and with relation to surrounding countries and waters.
- "2. Comparative size and shape.
- "3. Mountain systems and important ranges; slopes and plains.
- "4. River systems and important rivers.
- "5. Important cities, their location, and their comparative population.
- "6. Climate, industries, products, and areas of production.
- "7. Form of government and general condition of the people as to education and ways of living.
- "8. Exports and imports, trade, particularly with the United States."

This is a plan of study proposed for all grades. In studying Holland many a teacher would prefer to begin with its most striking feature, namely, the position of much of its land below water level, which would, perhaps, come under the third point here.

In studying Brazil many a teacher would prefer to begin with the fact that much of our coffee is imported from that country, and then trace the reasons for so much coffee production there. That would turn this proposed sequence topsy-turvy. Many a teacher in teaching Japan would like to raise the question at the start how it happened that that little country was able, in the recent war, to defeat the Russians so completely. In searching out the geographical reasons for this victory, the suggested plan would again be completely upset. Any one must admit that any single sequence, no matter how good, if always followed, would be likely to make the instruction formal.

The reply to these criticisms may be made that the proposed plan of study is *suggested*, and that teachers are entirely free to follow any other order desired. But, while there are probably many teachers who assert this freedom, we are convinced that the majority of teachers regard this sequence as practically obligatory. We have talked with a large number who have expressed this conviction. Also, we have been much impressed with the emphasis placed upon this sequence in the syllabus. For example, we have found in the syllabus for Grade 5A, under the heading, North America, the direction that "This continent

and its countries *should* be studied in accordance with the plan presented in the Introductory Note" (that is the plan quoted above). Again, even on the same page, after a list of seventeen states of the United States is given to be studied, the direction is added, "Each state should be studied as far as practicable in accordance with the plan suggested for the study of a country." In 6A, further, we find the direction, "The countries assigned to this grade should be studied in accordance with the plan presented in the Introductory Note." We find the same thing repeated again in 6B; again in 7A; and finally in 7B. This must at least be a very serious suggestion when so much space out of only twelve pages, in all, for geography, is given to it.

While there is not a thing in the syllabus urging teachers to forsake uniformity for individual ways of treating topics, there is another paragraph in the Introductory Note showing an unqualified devotion to uniformity. It reads as follows:

"Most of the work in geography should be done in the classroom. Very little, if any, study at home is necessary. The lesson should generally begin with a study of a globe or a map. This should be followed or accompanied by the reading of pertinent selections from the textbook or supplementary reader. The selections should be read aloud in class, and pupils should be expected to answer questions after a single reading. Then some time should be spent in copying the map roughly from the book or from the wall, indicating such phases of the subject as have been studied. The next lesson should consist largely in questioning the pupils with the map before them and in requiring them to make rapid sketches of maps from memory. This exercise is the best method of fixing geographical knowledge and of showing the pupil how accurate or inaccurate his knowledge is. It is, moreover, the easiest way to teach much of this subject, as well as the easiest way to test the definiteness with which the subject has been learned."

Certainly uniformity is at a premium when any educational authority will attempt to state how several thousand teachers of geography, ranging from the fourth through the eighth grade, should "generally begin" a lesson, and what they should do "then," and "then."

So far as the syllabus itself, therefore, is concerned, it seems fair to say that it interprets the term "suggested" above referred to as a mere euphemism for "required."

Further proof of this interpretation is found in the fact that in at least some of the schools the District Superintendent, in his rapid examination of children in geography, is accustomed to have a large card bearing this list of eight points hung up before the class. Then, in the review of any country, the children follow this order of topics, speaking rapidly. One teacher, who revolted at this plan, followed a different order, of her own, and placed it upon a large card. In order to satisfy her District Superintendent, however, in case he should appear, she placed on the other side of the same card the outline that she knew he

might want. On appearing one day he called for the "chart," and, by mistake, the wrong side was exposed to view without his observing the fact. When the children had begun to recite from it, however, he looked up with surprise, and, seeing the unexpected substitute, he expressed his disapproval in unqualified terms. He had charge of approximately 800 teachers, and it was his duty to give each one a rating that was a prominent factor in determining promotion and salary.

### Care in Organization of Subject Matter

There is a tendency in all studying to drop down to the single, isolated fact as the sole unit of progress, and thus to abandon all thought of organization. In order to counteract this tendency it is one of the special duties of the curriculum to present its subject matter grouped into large wholes having closely associated parts; in that way it can exert a marked influence on classroom procedure.

The extent to which care in this direction has been exercised in this case is indicated in the plan of work for Grade 4B, quoted on page 92. We find there six continents to be located; five oceans; nine seas; seven gulfs and bays; seven mountain systems; fifteen rivers; sixteen countries; and eighteen cities—eighty-three in all, and each one named. And this composes most of the work in geography proper for that half year. More isolated facts could scarcely be proposed for a curriculum. In the course for Grade 5A the part requiring most time is the following:

"United States. States: Massachusetts, New York, New Jersey, Pennsylvania, Maryland, Virginia, District of Columbia, Georgia, Florida, Louisiana, Texas, Missouri, Illinois, Ohio, Minnesota, Colorado, California, Washington. Each state should be studied as far as practicable in accordance with the plan suggested for the study of a country."

In thus directly recommending and even urging the study of the United States by topics so small as individual states, the syllabus stands for a lack of organization that has long caused groaning in this city by both teachers and pupils.

But, in addition, look at the much emphasized outline of eight topics quoted on page 94, which "should be followed as far as possible" in the study both of these states and of all countries. No. 1, location, is unrelated to No. 2, size and shape. No. 2 is unrelated to No. 3, mountain systems, slopes, etc., except in rare instances. No. 5, important cities, here precedes No. 6, on climate, industries, and products, although causally it follows those topics, and No. 8, on imports and exports, is a direct consequence of No. 6, although form of government, as the seventh point, is allowed to break this connection. In other words, one wonders wherein lies the superior virtue of this arrangement of topics. No person can be expected, on reading them over once or twice, to reproduce them in order, through appreciation of their interdependence. They are a list rather than a series, although called a series in the syllabus.



Criticism of this list has already been offered on the ground that insistence upon any one fixed order seriously interfered with the exercise of initiative of both teacher and pupil. Now, however, the criticism is offered that this order itself shows a lack of appreciation of organization, and insistence upon it leads directly away from organization, rather than toward it. If the syllabus had merely listed these topics, as the ones usually most valuable; had forcibly urged the importance of close association of facts; and had given a few examples, showing how it must be secured differently in different countries, then poor teachers in all the grades might at least have felt their freedom, and their results would have been as good, if not better, than now; while the good teachers, conscious both of their freedom and of what good sequence is, would have far surpassed present results.

If, after considering these facts, one turns to the course for Grade 4A and sees that Home Geography, Local History, Good Citizenship, and The Earth are offered as main topics without the slightest attempt to interrelate them; if one turns to the eighth year and finds Physical Geography in the main separated from Commercial Geography; and, if one then discovers no plan for close correlation between the geography and history, one cannot easily avoid the conclusion that organization of subject matter has, somehow, been overlooked in the curriculum in geography.

#### Attention to Relative Values

As previously stated, every study contains a lot of minor, more or less formal, facts, such as dates in history, and individual words in reading; and another lot of more fundamental ideas which, in a way, carry the others and constitute the life of the subject. The proper emphasis of the latter, and consequent subordination of the former to them, are matters requiring much attention to relative values.

The history of geography reveals these two kinds of subject matter very strikingly. Thirty years ago geography was eminently the "science of location." Countries were bounded, mountain systems and rivers were traced, and cities were located, without limit. Maps and map drawing were resorted to in almost every recitation as one means of reviewing and fixing position, and drills on such facts were as prominent as drills in spelling. The highest aim was the vivid picturing of a portion of the earth's surface, or, better, of maps; and, as everything was conceived of as in a fixed status, "static geography" was the only kind known.

Since that time the fact that the whole earth's surface has undergone and is still undergoing endless change, in accordance with great laws of nature, has worked its way down to elementary school geography and revolutionized that subject. The most fundamental idea there at the present time is that of *force*, and on that account geography is now said to be "*dynamic*." The tracing out of the influence of natural forces upon the earth's surface, as it is related to man, has made causa-

tion the most prominent idea in every good course of study, and has led the principles of geography to be regarded as the real substance of the subject. This great change is manifest even in home geography, for children in very many schools now begin the subject by learning how soil is formed, how hills, mountains, and valleys are made and destroyed, how water is carried by the winds, etc.

The location of places is not omitted; in fact, children, after having left school, can now probably locate the more important places more successfully than formerly. But location has been approached much as a new word in literature, i. e., in the midst of a context that is worth while; and it has been reviewed, so as to be remembered, by abundant associations in chains of thought, touching industry, commerce, and natural law, that have real substance.

What conception of geography does this curriculum seem to stand for? Is it a *static* or a *dynamic* one? For a suggestion as to the answer turn to the latter part of the Introductory Note quoted on page 95. We read there that "Very little or any study at home is necessary." That seems somewhat surprising, if geography is a subject with a real content, comparable to that in history or literature. But further on we find rapid sketching from memory recommended, with the statement, "This exercise is the best method of fixing geographical knowledge. . . ." It is, moreover, the easiest way to teach much of this subject. . . ." One wonders "How much?" And when, in these four pages of introductory notes, we find not a single reference to the need of subordinating the more formal facts to the others, a suspicion is awakened that there aren't any others and that the whole point of view is static.

Now turn to the course itself to see. The old style bounding of countries and states is, fortunately, eliminated by the suggestion in Grade 7A. "Pupils will be expected to locate any state by reference to a neighboring state or to some physical feature, such as a body of water, or a range of mountains."

But, if we examine the Home Geography in Grade 4A, we find map-drawing to be the beginning topic, and location of points in New York City to constitute most of the other work that is strictly geographical. In the course in nature study for Grades 3 and 4 there are also some geographical topics, but they, too, are remarkably formal when compared with what is now done in home geography in many places. It would be hard to imagine a course more formal than that for Grade 4B. In the other grades the great emphasis on location, the omission of direct reference to the importance of causation, the insistence that the same formal outline be followed alike in the study of all countries and states, and the delay of all reference to physical geography—which must usually be the starting point in the causal chain—until the eighth year of school, when geography is an optional subject, if a foreign language is taken—all these facts together make this curriculum static and dead.

This course, as found in print, shows, as a whole, almost no influence

from the educational thought in the United States during the last twenty-five years; and its character is a direct hindrance to good teaching of geography in this city.

The regular amount of time allotted for this course is twenty-seven minutes per day in Grade 4; twenty-four minutes per day in Grades 5 and 6; and three forty-minute periods per week in Grade 7. It is possible that an average teacher might do the exact amount of work prescribed, in the way prescribed, within this time. But if any teacher attempted to add enough subject matter to give life to the formal work, the time would prove utterly inadequate.

### **i. Physical Training**

#### **Facts Showing the Character of the Curriculum**

The following paragraph is taken from the Introductory Note for the curriculum in physical training:

"Gymnastic exercise should conserve organic vigor, lead to correct posture, and train to quick and definite action. It should be based upon muscular coördinations, and should make a progressive demand upon muscular effort, complexity of movement, and power of heart and lungs. All available means of arousing and maintaining interest, such as the use of apparatus, and a change from classroom surroundings should be employed."

In accordance with this paragraph, the lessons in physical training consist of freehand and light apparatus exercises, and games. Each year's work is arranged in series of lessons, each lesson to be given for a stated number of periods. In the lower grades this work takes place in the classroom. In the upper grades, where light apparatus is used, the pupils frequently exercise in the gymnasiums, courts, or yards.

In the first three grades emphasis is placed upon marching, with drill in obeying commands. The children are urged to pause between the two parts of each command, and to wait always for the executive command.

In the arm-stretchings and hand-placings, "voluntary and isolated control of the arm as a whole" is sought. These exercises are followed by skipping, stretching, and breathing exercises. "In all respiratory exercises the children should be urged to a forced respiration. Exaggerated lifting of the shoulder should be avoided." Leg-bending, rising on toes, trunk-bending, arm-circling, hand-clapping, and point steps follow in order. The lessons usually conclude with a trunk-bending exercise.

The following is a typical lesson:

Grade 1—First half year. Lesson VI.

1. Stretching.
2. Marching and skipping. Arms folded behind—Place!
3. Breathing—Begin. Three times. Hands on hips—Place!
4. Hand on shoulder, right—One! 8—8—8.

5. Arm-stretching sideways, right—One! 8—8—8.
6. Rising on toes—One! 8.
7. Bending leg upward, right—One! 8 or 16. Hands on hips—Place!
8. Trunk-bending sideways, right—One! 8—8.

Of the five lessons per week, the syllabus requires that at least three be given to gymnastic work. "Not more than two days per week (thirty minutes) may be devoted to the games, training for the button test, class athletics, or folk dancing named at the end of the syllabus." This quotation from the general introduction to the Course of Study indicates the emphasis placed upon formal gymnastics. The tendency is to minimize the work in games and to make the physical training primarily gymnastic drill.

In more than twenty classes observed only those above the sixth grade were taken to the gymnasium for physical training. The result of a questionnaire given to 207 girls who, less than a year ago, completed the elementary school course in 53 different schools in New York City shows the following:

Those having had no games in school.....	32
Those having had games out of doors.....	24
Those having had games out of doors sometimes.....	15
Those having had games in classroom and gymnasium.....	131
Miscellaneous answers .....	5

Of the 131 girls who played games in classroom and gymnasium, eighty-five had this work only after they entered the seventh and eighth grades.

Of the 207 girls questioned, 151 had had physical training every day; 47 had had it two, three, or four times each week; the other nine had had two-minute drills after each lesson. Remembering that there are only five periods per week given to this entire subject, we get here rather definite information as to the prominence of the games.

In many schools there are no facilities for running, folk-dancing, and athletics. Teachers are not trained to do this kind of work, and have little interest in it. It takes time for forty children to pass from a fourth floor classroom to a basement gymnasium or court. Teachers have not the time, strength, or desire to do this extra work; hence the time planned for games and dancing is very often devoted to gymnastics in the classroom.

In many buildings, too, the courts or gymnasiums are dark, poorly ventilated, and generally unattractive and unhygienic. Teachers feel that gymnastic exercise given in the classroom is a legitimate substitute.

Teachers explain also that during the game work children become noisy and unmanageable. It takes time to get them settled down to work again, and entirely under control.

### Provision for Motive

It is plain, from all this, that the curriculum in physical training is composed chiefly of gymnastics, planned from the adult viewpoint exclusively, like the course in arithmetic (page 81). The needs of the child, to be sure, form the basis for the plan, but not those that he is himself actively interested in. Unless he is greatly concerned about his health in general—and he would be in an unhealthy state of mind if he were—and unless, also, he is able to appreciate the importance of correct posture and muscular coördination, most of this curriculum must seem to him mechanical, unnatural, and lifeless.

Interest, according to the introductory note quoted at the beginning, is declared to be desirable; but it is simply as a means of carrying the pupil through the movements, and not as an important end in itself; and there is little attempt to choose subject matter in the field that can arouse interest, as literature arouses it. In other words, while modern educational theory requires that the formal elements in beginning reading, geography, history, and many other subjects be subordinated to others that are stimulating, and while the best modern practice in these fields centers in this effort, that entire conception is, in the main, ignored in this physical training.

We are convinced that the pupil's attitude toward the subject is as important in this field as in any other; indeed, probably more important, since health is so much involved. Physical training should develop an interest in play, a knowledge of games, and a skill in them, that will permanently identify one with healthy sport, just as literature should develop a permanent taste for reading, and nature study a permanent enjoyment of plants and animals.

This being accepted, a curriculum in physical training should be selected with reference to the pupil's interest, just as in the case of these other subjects. That means no abandonment of the health aims that seem to the adult desirable. In fact, they can be gained as well, or better, through exercises which are natural, spontaneous, and enjoyable. Movements performed on the gymnasium floor or in the playground can involve the same principles and elements as those belonging to classroom, laboratory and studio, while their richer content will make them much more effective with the child. But this plan does mean the subordination of the adult's purposes to things that seem to the pupil worth while. He should run in proper form, or keep the body erect and hold his bow and arrow in a prescribed way, not because he wants to have a flat back and high chest—the adult's objects—but because he knows that these positions bring results, and he wants to win the race or prove his skill as a marksman.

So he should bend the arms and legs, and develop other portions of the body, by climbing, running, dancing, and by performing other

activities that, by their long popularity, have been proved to be classic. The absence of even a tendency toward this conception of physical training seems to us reason for condemnation of this plan of instruction, so far as provision for motive is concerned.

### **Provision for the Exercise of Initiative on the Part of Teachers and Pupils**

Considering again the typical lesson given, one asks, What is there here that allows the initiative of a six-year-old child? What interest has he in breathing exercises, especially when he is urged to hold the chest high, to lower the shoulders, to inhale through the nostrils, and to exhale through the mouth? Why should he be interested in bending his arms in a definite way for a stated number of times and to the teacher's count? The marching and skipping exercises are suggestive of more freedom, but unfortunately they cause too much noise, confusion, and dust, and are therefore generally omitted. But when they are given the children are held down to the dull monotony of the teacher's count, sometimes varied by the tap of the ruler, the clapping of hands, or the snapping of the fingers. The children must march in attempted military form with weight on toes, chin in, chest high, hips back, and the steps must be carefully numbered and regulated in order to bring each child to his place by his desk at a given time. There is little provision for initiative here. In that respect such exercises contrast strikingly with physical training in which the pupils express an idea or emotion which seems worth while by dancing, pantomime, or other dramatic representation; or in which the muscular effort put forth aims at some definite effect, as in the maintenance of squad formation in marching, in hitting a ball, throwing a ball into a basket, swimming to a given point, outrunning a competitor, or in any one of the infinite number of things to do in games.

And note the freedom granted to the teacher:

"The gymnastic exercises are arranged in programs or lessons. Each lesson is intended to be given entire every day for two weeks."

If this plan is carried out there is little time left for games and dancing, unless the recess period, which, by many teachers, is disregarded, be utilized. And, remembering that each lesson is to be given in entirety each day for two weeks; that the teacher is expected to adhere strictly to the order in which the lessons are arranged; and that the work must stand the criticism of the supervisor, who judges the teacher's success by the children's ability to do the prescribed work, it appears that the teacher has as little opportunity for originality, choice, and initiative as the child.

### **Organization of Subject Matter**

Does the subject matter suggest a field of scattered ideas and isolated facts, or is it grouped in large wholes having closely related facts?

This standard of criticism is more difficult to apply to physical education than to those subjects in which the course of study deals more directly with ideas than with motor activity through which ideas are expressed. If the lessons for each grade consist of skeleton outlines lacking in suggestion, barren of interesting material, and intended only to attain certain physical results, then the necessity for organization of material is slight, save as certain exercises are selected and progressively arranged to provide for nutritive stimulation, postural correction, and psychological control. If, on the contrary, the work in physical education is considered as a part of the natural, present life of the child; if it offers material through which the child can live out freely and joyously the things in which he finds present interest, then the course of study can no longer be an outline of cold, unrelated, trunk-bending, arm-stretching, and breathing exercises; but it will suggest material correlated with many home and school activities and interests, in the enjoyment of which children will bend their knees, stretch their arms, and breathe naturally.

The following quotation from the introduction to "School Gymnastics" gives a general idea of the principles upon which the arrangement of lessons and exercises is based:

"The order in which the exercises are arranged follows a general plan, which gives all-over exercise in each lesson without overfatiguing one part. The lessons all begin with a preliminary stretching of the arms upward and sideways, to assist the body to a good standing posture from which to take the exercises that follow, and with a drill in marching, facing, and running which secures general attention from the class and gives opportunity for ventilation. A breathing exercise is taken, and is followed by the regular table of exercises. This table begins with work for the extremities—the arms and legs—to increase the flow of the circulation away from the central part of the body. The central part of the table contains jumping exercises which, like the running, produce maximal effects upon the circulation and respiration. The table closes with trunk exercises, which, in their use of large muscular groups, again approach maximal effects, though not such as to embarrass the respiration as do running and jumping. The progression of the exercises and their grading for children of different ages are governed both by their physiological and mechanical difficulty and by the child's ability to isolate or coördinate muscular movement."

Here is clearly indicated the emphasis placed upon physiological and mechanical processes.

It is the coldly logical and scientific attitude that is in control, rather than the pedagogical, and it has the same general effects that arrangement of subject matter from the standpoint of pure science in any field has upon children. In this case it trains the body too much within itself, without sufficient regard for the attitude of the mind and for the indirect effects of exercise upon disposition and personality; and it develops

various forms of ability which are not, in identity, similarity, or analogy, closely enough related to the interests and activities of human life to justify the time and effort given to them. When physical education presents a program which is psychologically and physiologically sound, and therefore pedagogically acceptable, it will find itself in organic relationship with modern educational thought to a degree hardly hinted at in this arrangement.

#### Attention to Relative Values

Do fundamentals receive proper emphasis, and are the more formal and less important parts subordinated to the vital and more real ones?

A study of the syllabi in physical training convinces one that much thought has been given to the progression, arrangement, and combination of exercises. The matter of proper arrangement and emphasis depends upon the viewpoint. It is stated that postural correction has governed mainly both the selection and combination of exercises. If postural correction is the most important end to be gained in physical training, and if this can be obtained through artificial and mechanical means, no doubt the arrangement here suggested is not to be questioned. If, however, instead of being considered the end in physical training, posture becomes a definite, needed, and much desired means to the attainment of certain interesting ends, far broader and farther reaching; the emphasis is shifted. Then the mechanical forces appear no longer either in the lead, or in isolation. Connected naturally with the activities in which he is interested, these more formal elements give up much of their formality in favor of the active, developing child and fall naturally into place as means by which he is able to do the things in which he takes present delight and satisfaction.

Applying this standard, we find that the course of study shows marked emphasis upon posture and coördination. The lessons and exercises seem planned to bring about these results, and all other aims are relatively subordinated. According to the aims of physical training as stated in the introduction to the course of study this course of procedure seems logical. But, measured by broader psychological values and principles, these ends become of secondary importance and the course of study appears mechanical and illogical. It is lacking in proper emphasis of the more vital and real elements in physical education.

#### Summary

In judging this curriculum we have assumed that a healthy course in physical training should be judged by the same general standards as a curriculum in any other normal subject; that is, we have assumed that its worth lay first of all in its appeal to the *mind* and feeling of the pupil. In order to make this appeal it cannot be composed merely of a list of movements, although it may include movements; but it must have a



content comparable in richness with that of literature, or music, or industrial art, or nature study; and through this rich content it must affect the leading habits of the pupil within its realm, just as each of these other subjects is expected to affect leading habits within its field. In brief, it is responsible for influencing the child's tastes and purposes, with reference to physical exercise and sport; his habit of attending to relative values in this field; his tendency to organize his experience along this line; and his self-reliance in executing plans for taking exercise and playing games.

Judged by this standard this course and syllabus are sadly lacking.

### j. Hygiene

#### Quotations Showing the Character of the Curriculum

In the course of study, physical training and hygiene are considered together. Since, however, according to the scheme of work outlined in the syllabi, there appears no close relationship between the two, it has seemed permissible to discuss them under separate headings. The following quotation from the Introductory Note in the course of study for physical training and hygiene suggests the scope and character of the instruction in the latter subject:

"The teacher should aim to lead pupils to cultivate habits of cleanliness; to care for health, eyes, ears, mouth, teeth, and nose; to give attention to food and clothing, ventilation, rest, sleep, and play; to maintain good position while standing, sitting, writing, sleeping, and walking. The important facts with reference to growth, structure, and care of the body, and the conditions under which it works most effectively, should be taught in a progressive way, so that one specific topic may be made prominent each year. As required by law, physiology and hygiene are to be studied with reference to the effects of alcohol, tobacco, and other narcotics, on the human system."

More detailed directions, typical of those given for a particular grade, are found in the following paragraph, pertaining to the 2B grade:

"Instruction should be given to pupils in regard to the most wholesome foods; the importance of regularity of eating; growth and nutrition. The lessons should include a brief description of the anatomy, composition and care of the teeth, and the importance and beauty of good teeth.

"Effects of alcohol and narcotics. The teacher in preparatory oral lessons should consult one or more of the textbooks in physiology and hygiene presented by the Board of Education."

For further discussion of instruction in this subject, see discussion of recitation observed, page 37.

For Grade 7B the following work is outlined:

"Pupils should be taught the important facts concerning respiration; the anatomy of the lungs and the mechanism of breathing; the general structure of the heart, lungs, blood vessels, and lymphatics; and the relation of tobacco to the growth of the body in size and strength."

In planning the course the aim has been to make prominent each year one specific topic. To this end the following arrangement has been adopted:

- Grade 1A. Cleanliness—Effects of alcohol and narcotics.
- Grade 1B. Cleanliness of different parts of the body.
- Grade 2A. Dietetics—Effects of alcohol and narcotics.
- Grade 2B. Foods.
- Grade 3A. Clothing, play, posture—Effects of alcohol and narcotics.
- Grade 3B. Posture, endurance, speed.
- Grade 4A. Pure air, ventilation—Effects of alcohol and narcotics.
- Grade 4B. Care, use, and structure of the different parts of the body.
- Grade 5A. Emergencies—Effects of alcohol and narcotics.
- Grade 5B. First aid.
- Grade 6A. Board of Health—Effects of alcohol and narcotics.
- Grade 6B. Contagious disease.
- Grade 7A. Study of the body—Effects of alcohol and narcotics.
- Grade 7B. Anatomy of throat, lungs, etc.
- Grade 8A. Nervous system.
- Grade 8B. Habit formation.

#### Attention to Relative Values

The effects of alcohol and narcotics is the only topic taught in every grade. This work is presented through the reading of textbooks in class. These texts treat formally the effects of stimulants and narcotics in various anatomical and physiological relationships; of the distillation of alcoholic drinks and of the sure and horrible effects of smoking and drinking.

In the syllabus the subject of alcohol and narcotics is given a separate and entire paragraph, while the subject of cleanliness is referred to directly only in Grades 1 and 7, and indirectly in Grades 2 and 4.

We do not believe that temperance hygiene should be disregarded. The criticism is upon the emphasis given to it. If the personal and physiological aspects were subordinated, and the emphasis placed upon the social, industrial, and economic aspects, personal and civic health would be encouraged, and abstinence made more likely.

While by the arrangement of the course of study the subject of alcohol and narcotics is given first place, that of the anatomy of the different parts of the body is placed second in importance. In Grades 2, 4,

7, and 8 decided emphasis is given to this subject, while in one grade only—the sixth—is reference made to civic health. Respiration is to be studied in Grades 3, 4, and 7, while the subject of the prevention of disease is mentioned in the sixth grade only.

In many of the schools hygiene is entirely neglected, unless one may consider the "morning inspection" a substitute for it. In a few of the buildings old "Temperance Primers" are used in the primary grades. In general, however, the hygiene that is offered is given above the sixth grade.

If the formation of correct habits be the aim of this course, it is reasonable to believe that it should provide health instruction for children before they enter the sixth grade. Especially is this true since so many of the foreign children leave the public schools as soon as they can obtain their working papers—the conclusion of the 5B grade.

The conviction that most of the instruction in hygiene resolves itself into the teaching of physiology, anatomy, and alcohol and narcotics; that this instruction is given mainly in the upper grades; and that it is left largely to the discretion of the individual teacher is substantiated by visits to many schools and by personal talks with supervisors, principals, and teachers. It is verified also in a very interesting, although perhaps less reliable, way by a questionnaire to which answers were received from 200 recent public school pupils, representing more than forty different schools in the city.

Of these pupils, 138 stated that they had had hygiene during their elementary school course; seventeen said they had had physiology; twelve had had no work of this kind; and about thirty had had "very little." At first sight this result seems encouraging, since it indicates a decided emphasis upon health instruction. When, however, these pupils were questioned regarding the topics studied the result showed quite a different emphasis, and indicated that anatomy, physiology, alcohol, and narcotics are being taught in the schools under the name of "hygiene," so that pupils are leaving the public schools ignorant of the true meaning and significance of health instruction. The result of the questionnaire shows that the hygiene in the more than forty schools included the following topics:

Structure of the lungs mentioned by about 90 per cent. of the pupils							
Structure of the heart	"	"	"	87	"	"	"
Fresh air	"	"	"	80	"	"	"
Structure of the skin	"	"	"	75	"	"	"
Bones	"	"	"	75	"	"	"
Care of the hair	"	"	"	70	"	"	"
Alcohol and narcotics	"	"	"	70	"	"	"
Stomach	"	"	"	68	"	"	"
How and when to bathe	"	"	"	50	"	"	"
Civic League	"	"	"	20	"	"	"
Department of Health	"	"	"	15	"	"	"
How to care for your bed	"	"	"	12	"	"	"

The fact that the subject of fresh air was mentioned by about 80 per cent. of these pupils may be due to the influence of the little book on Tuberculosis which has been placed in the hands of teachers by the Board of Health. Invariably in schools in which this book has been used the pupils mentioned fresh air as a topic discussed.

That about 70 per cent. mentioned the care of the hair as a subject discussed is suggestive of the influence of the school nurse and of the so-called "morning inspection." It is significant, also, that the organization of civic leagues is reflecting a helpful influence upon the hygiene in the schools.

When it is noted that the number of those mentioning the Department of Health falls to 15 per cent., and that only 12 per cent. had been told how to care for their beds, while about 90 per cent. had been taught the structure of the heart, the overemphasis on mere anatomy is strongly suggested. From given lists these pupils were asked to select those topics which were most frequently discussed in their hygiene work. The following results were obtained:

Structure of the lungs mentioned by about	90	per cent.	of the pupils
Structure of the heart	"	"	"
Stomach	"	"	"
Alcohol and narcotics	"	"	"
(including how alcohol is made)	50	"	"
Department of Health	"	"	"
Prevention of sickness	10	"	"
	2	"	"

These results, corresponding in general with those before noted, give added evidence of the emphasis on anatomy and physiology, and of the disregard for hygiene.

Considering the relative importance of these things in life, serious error, we think, has been committed here. Undue emphasis has been placed on the more formal and less valuable parts, while the more vital topics have been subordinated.

And not only are the wrong topics emphasized, but the worth of knowledge is overestimated. The tendency now is to value mere information in this field less, and to esteem more highly useful reactions and habits. But there is little manifestation of that tendency in this plan.

### Organization of Subject Matter

This subject might have been organized around the pupil's own interests; but there is far too much that is purely anatomical and physiological to allow that arrangement. Or it might have been correlated, in important parts, with the physical training. But there is no evidence of serious attempts in that direction. Or it might have been intimately correlated with nature study, so that the pupil's interest might have been greatly increased and that he might have been relieved of the danger of a

disturbed self-consciousness by approaching the structure and function of his own body through the study of plants and animals. But this possibility, also, has been overlooked. In fact, there is little organization here; the course is principally a list of topics that, supposedly, a child ought to know. This criticism is not given, however, without appreciation of the fact that, under a few of the subjects emphasized in the course, there are suggested helpful, interrelated topics which, if valued and intelligently utilized by the teacher, might result in making the work in hygiene of much value.

The fact should be borne in mind, also, that the law in regard to temperance instruction makes it difficult to plan a well-organized course.

### **Provisions for Motive and Initiative**

Enough facts have, perhaps, already been presented to show that little provision has been made in this course either for the motive of children or for the exercise of individuality of children or teachers.

Yet of all subjects hygiene needs most to be related to a child's own interests and purposes, since it should affect his conduct directly. The truths that it offers should be a mere means by which habits may be established. But the instruction as here planned appears largely indifferent to any result beyond information. It is a bald presentation of facts, without that setting which makes one reflective in regard to them until they become parts of habitual trains of thought.

For example, as an abstract subject, food is most uninteresting, especially when the emphasis is placed upon nutrition. But in the cooking room, where the child has the opportunity of seeing the food in process of preparation, and takes an active part in its preparation, the subject of food becomes of present interest. With such an approach, hygienic principles may be discussed, and hygienic habits inculcated through the use of material directly related to the child's present interests and activities.

So almost any one of these topics can be made influential on conduct when approached in a skillful manner. But such approach is by no means a matter of method alone. It depends approximately as much upon skill in selection and arrangement of subject matter as upon skill in presentation. One of the discouraging facts about this curriculum is that the task has seemed too easy. At least the manner of performing it gives little indication of a deep appreciation of the degree of skill required to do it well.

### **C. Conclusions as to Quality of Curriculum and Syllabi of the Kindergarten and Elementary School**

#### **1. The Kindergarten**

The want, at present, of a printed curriculum and syllabus that are actually followed in the kindergarten has made it impossible to discuss these subjects, in detail, as related to the kindergarten. But the curriculum followed, as seen on visits to various kindergartens, indicates that, with partial exceptions, the plan of study for that age of children is in substantial harmony with the standards set up. That curriculum, therefore, is a direct aid toward securing the kind of instruction that is desired.

#### **2. The Elementary School**

##### **a. Source of Data for Conclusions**

The data on which the following conclusions are based are principally the printed statements in the curriculum and syllabi. For a few subjects such printed matter is not at hand, or is partly out of date. Also the significance of occasional statements has had to be determined by seeing how they were interpreted in practice. On these accounts we have occasionally gone beyond this source. But this printed matter, taken as it stands, reveals a very important plan of work, and it is mainly this published plan that furnishes the data for the following conclusions:

##### **b. Provisions for Motive**

In order that instruction may affect the hopes and purposes of pupils, the subject matter must be intimately related to human interests, and to the interests of the children in particular. It is difficult to attain this ideal; but every good curriculum shows efforts in this direction, with at least partial success here and there.

To what extent does the curriculum here discussed meet this requirement? It is necessarily met to a large degree in literature, because classic literature is called classic partly because it deals only with vital human problems. The course in cooking, also, largely meets this responsibility.

Outside of these two the requirement is met in only a slight degree. There is no attempt, for example, to organize the subject matter of geography about human problems; nature study and elementary science do no better; they are approached from an encyclopædic and scientific point of view entirely. The grammar likewise shows the scientific standpoint only. The English history has almost no connection with present life. And the following subjects—music, composition, sewing, drawing,

shop work, physical education, and arithmetic—place the emphasis plainly on technical efficiency. The courses are, in general, baldly abstract; and, if they appeal to young people, it is due rather to accident than to any skillful provision for motive on the part of those who selected their subject matter.

The seriousness of this neglect of motive for particular children is seen, for example, in the course for the seventh school year. That is a year in which the subject matter should make a special appeal to the pupils, because great numbers of them now withdraw from school at the end of the sixth year, or during the seventh. Yet we find the following subjects in the course: Constructive and inventional exercises that have little purpose, as a prominent part of arithmetic; constructive drawing unrelated to actual construction; shop work in which a series of models has to be followed; elementary science patterned after college work and taught as a science; an outline of the entire history of England; and grammar taught as a science. One naturally suspects that such a course and truancy are closely related.

#### c. Attention to Relative Values—Judgment

As has been stated above, the only basis for judging the value of ideas is found in their relation to mankind; and, not showing an interest in the establishment of such a relation, the authors of the courses and syllabi may be expected to show carelessness, in respect to values, in their selections. And that is what has happened. A more superficial and static course than that in geography would be hard to find. The composition omits some of the most important factors in good composition. The arithmetic might omit nearly one-fourth of its present matter to advantage. A few things in English history are needed, but only a small portion of that now covered. Neither sewing, nor drawing, nor shop work calls attention to the richer portion of the subject matter in its field, technique alone being recommended. In brief, motive not being considered, many topics that have little worth are included and many others that are a very source of life are omitted.

#### d. Attention to Organization—Imagination and Reasoning

Organization has to do with the association of ideas. The indifference with which this association is treated is indicated by the neglect of correlation of studies with one another. There is practically no attempt to correlate history and geography; or history and civics; or geography and nature study; or nature study and hygiene; or literature and composition; or arithmetic and shop work; or shop work and drawing.

It can hardly be that the correlation of studies was entirely over-

looked by the authors of the curriculum—it is a topic that is too often discussed for that. Little value must have been attached to it.

This attitude indicates that the interrelation of ideas within each study will also receive scant attention. That is strikingly true of some of them, particularly of geography, history, and nature study. The underlying principles, or unifying ideas, of these subjects being largely omitted they fall apart into detached facts, having the minimum amount of organization.

Several other subjects, especially music, shop work, sewing, arithmetic, and, to a great extent, elementary science, stand for a sequence that is technical or scientific. But organization beyond that, securing a careful grouping of facts, so that the broader, and to the children more significant, truths stand out clearly as the unifying ideas—that organization is largely wanting.

#### **e. Provision for Expression of Individuality of Teachers and Pupils**

In a certain school, which has six classes at the same point of advancement, exactly the same topics in each study are mapped out each week for all the pupils. Thus nearly 300 children are required to cover the same ground at the same rate, week after week. That indicates the prevailing attitude toward individuality in the city, an attitude to a great extent produced by the curriculum and syllabi.

Observe, first, what provision these two make for the individuality of children. In the composition work, instead of cautioning against too much reliance on imitation of other writers, imitation is really emphasized as the controlling idea. There is no warning given against too much concert work in music, although that is one of the prevailing errors. The sewing and shop work are so planned that dictation seems to the teachers in those fields to be the one necessary method in class. Throughout the curriculum and syllabi there is remarkably little reference to any need of adapting subject matter to pupils; and there is almost no reference to the importance of teaching children how to study alone, or to the best ways of doing it.

Take next the teachers. In nearly every subject—at least in literature, history, geography, nature study, elementary science, composition, and arithmetic—the syllabus attempts to tell how any topic in that field should be taught. Instead of urging each teacher to adapt her method to individual conditions—including her own—there is a direct attempt to reduce the method in each study to a formula.

Of course, such formulæ cannot cover all cases and meet all needs. They are accordingly supplemented by suggestions. For instance, in history, throughout the sixth and seventh years, "No notes should be dictated by the teacher, nor should home study be required of pupils." First, in Grade 8A, "in history an earnest study of the textbook is rec-



ommended." Likewise, in beginning reading in Grade 1A, "the use of diacritical marks as a help to reading is optional."

Many of these suggestions are much needed, and probably the formulæ are often helpful; but it is their *source* that is here of special importance. Ordinarily classroom procedure is determined in a broad way by the working aims of instruction; and, in a more detailed way, by the principles of method, as drawn from psychology. But there is no attempt here to connect the details of classroom method with either the aims or the principles of instruction by basing these formulæ and suggestions on the two. There is usually no reference to aims and principles in the syllabi. The result is that these formulæ and suggestions find their basis in the authority of the Board of Superintendents, who issue them. For this reason they seem to the teachers very arbitrary—whether they were originally so or not—and, although called "suggestions" in the syllabi, they have the effect of directions or requirements, since they are based on the authority of superior officers.

In remarking that there is usually no reference to aims and principles in the syllabi, we do not overlook the fact that there is some discussion of these matters. For example, in the Introductory Note for geography, the intellectual purposes of geography are stated as follows:

- "1. Geography may be made to train the observing powers.
- "2. It may be made to train the imagination.
- "3. Rightly taught, geography trains the memory.
- "4. Geography should also be made, particularly during the last three years of the course, to train the reasoning powers. When you ask a child to classify the natural features of a country—rivers, for example—according to some common property, as navigability, or the products of a country, as necessities and luxuries; and still more when you ask him to generalize after he has classified, as, for instance, to determine the status of a people after a classification of their products, you are training him to reason."

But such statements as these are passed over because they are too general to have much influence on practice. One reason for reproducing them here is to show how little basis, beyond personal authority, the writers of the syllabi really had in mind. Incidentally, what is more discouraging for a teacher who is in close touch with modern educational thought than to find a course of study, that she must follow, prefaced by such academic and outworn statements as these?

There is another important fact concerning these formulæ and suggestions in the syllabi; i. e., there is usually only one solution offered for the mastery of any one kind of difficulty. For example, only one plan is proposed for the appreciative reading of a masterpiece of literature, and only one order of topics for the teaching of any country in geography. Likewise, only one suggestion is usually made for solving each class of minor problems. In composition for Grade 3A, for instance, we find the following:

"The pupils should construct statements from questions or directions. The teacher and the pupils working together should construct paragraphs."

Of course, there might be several ways of getting pupils to construct statements and paragraphs. But, apparently, this method is the best; otherwise, presumably, others would have been suggested. And, by presenting it alone, the bad effects of the exercise of bad judgment by the teacher are avoided. Thus the teacher throughout all the syllabi is generally relieved from the danger involved in the exercise of choice.

We are forced to conclude, then, that so far as the individuality of children is concerned the curriculum and syllabi not only make no provision for preserving and developing it, but that their influence tends somewhat in the opposite direction.

So far as the teachers are concerned the curriculum and syllabi are a positive help in the sense that every teacher must follow a course of study; there would be chaos in any school without one. But beyond that they directly curtail the teacher's freedom. In their general plan they refuse to trust the teacher by putting the aims and principles of instruction before her, clarified by illustrations, and by allowing her to weigh, select, and try. That is a necessary condition of growth for the teacher, to be sure; but growth with that risk would, it seems, be too dear. On the contrary, to the greatest extent possible, the teacher is told specifically what she shall do. What wonder, then, if the average teacher feels that she has little more to do than to *obey*?

#### f. Standards Actually Followed in the Present Curriculum and Syllabi

It is evident that the standards proposed by us for judging curriculum and syllabi have been largely ignored. In order that the situation may be more fully understood it is pertinent to ask, What standards were actually followed?

That question brings us back to the elementary school working theory that was stated to be an important factor in determining the quality of classroom instruction (page 43).

The influence of that theory upon the curriculum and syllabi should be noted. The first article—belief in the necessity of unlimited uniformity—explains why 650,000 children, representing all kinds of environment and ability, are given substantially the same curriculum, to be covered in the same time; why classroom method is reduced as far as possible to formulæ; why both these formulæ and the numerous other suggestions are based on personal authority rather than on the aims and principles of instruction; why, in brief, scarcely any attempt has been made here to provide for the individuality of either teachers or children.

The second article—the belief that the core of instruction consists in those facts and kinds of skill that are automatically usable—explains why

the underlying principles and richer subject matter in many of the subjects, such as geography, shop work, and music, for instance, have been neglected for the more formal portions.

The third article—the belief that the most desirable element in scholarship is accuracy in details—accounts for the remarkable lack of organization in the subject matter. Details being, individually, the center of interest, their association either by correlation of studies or by careful grouping of facts within each study becomes a negligible matter. The only phase of organization that has received much attention is that of sequence within particular studies; but that is confined to a few of the studies, and the sequence secured is one for adults (logical) rather than one for children (psychological).

The fourth article—the belief that the content of curricula should be selected with reference to the distant future—accounts for the want of subject matter that appeals *now* to children, and, therefore, that affects their present conduct.

The curriculum and syllabi give little indication that their authors have made a close study of present social life with the object of discovering the principal qualities that make one an effective participant in it. Nor do they give much indication that their authors have made a close study of children with the object of discovering those characteristics that must be used as the basis for growth. On the contrary, they contain much evidence that their authors are not much concerned with *growth*; that they are not interested in the development of children through the agency of teachers who are themselves developing; their point of view is static.

The most striking fact about the curriculum and syllabi is the want of educational leadership that they display. Barring a few exceptions they could both easily have appeared twenty years ago, in spite of the fact that the last twenty years have been years of remarkable educational progress, and particularly in the field of elementary instruction.

#### **g. Effect of the Curriculum and Syllabi on the Attitude of Teachers**

The effect of the curriculum and syllabi on the feeling of freedom among teachers is easily traced. Their judgment being appealed to, or relied upon, at scarcely any point, they naturally reach the conclusion that there is no provision for their individuality in this printed matter; but that, on the contrary, they are distrusted and restrained by it. Of course, printed directions are not always followed. And it remains to see how the schools are supervised, before final conclusions can be reached as to the degree of freedom that the teachers actually enjoy in practice.

**h. Effect of Curriculum and Syllabi on Instruction in the Elementary School**

According to the by-laws of the Board of Education (paragraph 8, section 40) these syllabi outline the minimum curriculum, thus making it peculiarly binding; and whether that regulation is fully enforced or not they exert a great influence on the quality of classroom instruction. Resting on so low a plane, their depressing effect on active-minded, progressive teachers is not easily overestimated. It would be next to impossible for a good teacher to present the course in geography for Grade 4B or 5A, as now outlined, in a way that would make the instruction even fairly satisfactory. And the same must be said of many other parts of the curriculum. So far, then, as their exclusive influence is concerned, the curriculum and the syllabi not only fail to inspire good teachers, or to encourage them by showing the relation of the aims and principles of education to subject matter and method, but they directly limit them to low ideals.

Probably some of the leaders in the New York City system would admit that the present plan does take little cognizance of the good teacher; and they might defend it on the ground that the good teacher can look out for herself.

Consider then the young and the poor teachers. Educators must be optimistic enough to believe in the great capacity of such teachers to improve. In fact, there is no option about meeting that demand. The capacity of children to improve through instruction is assumed in the establishment of the school. And they cannot do this to a normal degree unless their teachers themselves are growing.

Assuming the capacity of the young and the poor teachers to grow, one of the first conditions to be met in bringing about the result is for such extremely important documents as the curriculum and syllabi to provide plainly for their growth. If we take such teachers where they are, and immediately direct them at every important turn, on the basis of mere authority, they will not even remain where they are; they will rather become less progressive and less happy from year to year. And, with several hundred teachers entering the system every year the time will soon come when the great majority will be static and discontented. That has necessarily been the tendency, so far as this curriculum and these syllabi have exerted an influence.

In short, freedom to grow, and positive aids to growth, are necessary alike for all teachers, both young and old, and poor and good. But this curriculum and these syllabi have neither allowed this freedom, nor furnished these aids; and in these facts we find at least a partial explanation for the poor quality of classroom instruction.

## **D. Recommendations<sup>1</sup>**

### **1. As to Minor Changes**

A large number of minor changes are needed in the present curriculum. Many of these have already been clearly enough indicated in our discussion of the individual courses of study. Some of the more important, however, may be enumerated and more clearly explained here.

#### **(a) Technical Grammar**

Technical grammar should not have a place as a separate study. Its time should be given over to literature and to composition, the latter including those facts from grammar that are directly useful in securing correct oral and written expression.

#### **(b) Nature Study**

The course in nature study needs extensive reorganization in accordance with the suggestions made where that subject is under discussion (p. 77).

#### **(c) English History**

English history should not be taught as a separate subject; but those topics that are necessary for the proper comprehension of United States history should be taught, in connection with the latter.

#### **(d) Arithmetic**

A considerable part of the present course in arithmetic should be omitted. During the first six years, the fundamental operations—addition, subtraction, multiplication, and division of whole numbers and simple fractions—both common and decimal—should be emphasized, together with percentage and its simplest applications to interest and trade discount.

In those years the effort should be made to secure accuracy and a reasonable degree of facility. During the last two years the time devoted to arithmetic should be reduced from five forty-minute periods to not more than three forty-minute periods per week. The first object of the instruction should be to bring the pupils to the degree of efficiency in the fundamental operations proposed by Mr. Courtis.

<sup>1</sup> It must be understood that all these recommendations are regarded by us as only a safe basis of experimentation for the progressive improvement of the curriculum. Such experimentation can be effective only when the results achieved are carefully observed and appraised for a sufficient period of time. There is no other way known to us of testing the validity of such standards as we have set up, or of their efficacy in practice.

Beyond that, the time should be devoted to the applications of arithmetic, such as are needed in connection with geography, history, civics, and other subjects. The arithmetic for the higher grades has not yet fulfilled its function. Geography locates leading industries, and gives reasons for the location; history, civics, and other subjects offer other facts about such topics as the above; but, what a great railroad system really is can be understood only when one comes to understand how many men it employs, what income they receive, how long they have to work, how many are killed per year, what quantities of goods are transported, how much capital is invested, what profit the stock brings, etc. Likewise, one must know the quantities involved, in order to appreciate what a warship means, what a farmer does, what a mine is. The principal purpose of this portion of the arithmetic should be, not to teach processes, but to identify the pupil, in knowledge and interest, with his business environment; or, perhaps better, with his environment on the quantitative side; just as literature identifies him with his moral environment, and fine art with his æsthetic.

#### (e) Correlation of Studies

An extensive rearrangement of the curriculum is necessary in order to establish a fuller correlation among the studies.

#### (f) Course for the Seventh Grade

The work of the seventh year, in particular, is greatly in need of enrichment. In order to accomplish that object, most of the studies for that year need serious modification, as briefly suggested in connection with the discussion of these particular subjects under "Curriculum and Syllabi."<sup>1</sup>

### 2. Adjustment of the Curriculum to the Needs of Individual Schools

The leading question, however, concerns the uniform curriculum for all the schools. That is already a pressing question with reference to the 7th and 8th grades, inasmuch as there is much demand for the establishment of intermediate schools for children of those grades, in which different courses shall be offered.<sup>2</sup>

Take a simple situation. In a certain city there are two schools. Heretofore the officers of each school, i. e., principal and teachers, have taken the initiative in preparing its curriculum and have done most of the work. Having their eyes on the particular children concerned, each

<sup>1</sup> See also Dr. Bachman's discussion of the elementary school course of study in his report on Promotions and Non-promotions, and in his report on the Intermediate School.

<sup>2</sup> See Intermediate Schools.

group has made a course under the influence of their own experience. And, as might be expected, the curricula of the two schools are unlike in many particulars. The subject matter, being reasonably adapted to the pupils in quality and amount, and there being no necessity of keeping pace with an army of other children, little complaint about overcrowding is heard, in either school.

What would be the effects, if the two schools were required to follow the same curriculum? In a striking way, the principle of adapting subject matter to particular children would be abandoned; the individuality of the teachers would be ignored, with many evil consequences; and the way would be paved for complaints about overcrowding and the opposite.

A general misfit would appear. The following statement seems, then, to be worthy of ranking as a principle in the making of a curriculum; namely, it should be planned on the basis of the particular children to whom it is to be taught, as that basis is interpreted by those who know it best. Changes may be effected by higher authority, but the teachers and principal should take the initiative and do the main work.

The differences among the hundreds of elementary schools in New York City are much more striking than those between the two schools mentioned. Keeping this fact in mind, and also the principle just stated, we propose the gradual adoption of the following plan for this city:

The principal and teachers of a school in one of the crowded sections of the east side, assisted by the best talent among the superintendents, shall plan a curriculum for that particular school. In this way, all the inhabitants of the city might be shown what one good curriculum is. Since the upper west side contains a very different kind of population, a curriculum for a particular school there might be planned in a similar manner. Thus, a second curriculum might be secured, adapted to a particular situation. For a certain school in the Bronx, representing a third type of environment, and of pupils, a curriculum might be prepared under like conditions; and a fourth, fifth, and others might follow, according to the number of somewhat distinctive types of schools in the entire city.

With the help of these curricula principals and teachers of other schools might take the initiative in preparing curricula for their own schools. If they lacked ability, or energy, or power to coöperate with one another, or all these together, they could, at least, adopt outright one of the several types, already developed, that most nearly fitted their own condition. In that case, they would at least get a much better fit than any they now have.

On the other hand, if they possessed ability, energy, and power to coöperate, they might modify one of the curricula in a way that would adapt it more fully to their own conditions—with the very important responsibility of having to defend and, perhaps, abandon such modifications, if their District Superintendent opposed them forcibly. The re-

sult of such a plan would be that the curricula would be far more carefully fitted to the needs of pupils throughout the city, and that the teachers, exercising initiative more fully, would be more active-minded and progressive, more effective as teachers, and happier.

According to the plan that is actually followed now, one curriculum is made out, without reference to any particular school—with the hope that it will fit all, and with the knowledge that it will fit none. There are glaring misfits on every hand. In spite of the fact that nature study and home geography should vary greatly according to environment, and ought to vary more, according to the ability of the teacher, only one course is offered to all. In spite of the fact that four-fifths of the children in some schools hear only foreign language at home, while few in other schools hear anything but English, all are expected to spend approximately the same time in the study of English. And, of course, there must be overcrowding for some tens of thousands, and not enough work for other tens, while all suffer more or less.

All this would not be so bad if it did not carry another thing with it that is worse. That is, such open and utter lack of adjustment to individual conditions, in a thing so vital to the entire educational system as the curriculum, destroys the principle of adjustment to individual conditions in general; indeed, it advertises the principle of non-adjustment. Minor offenses against adaptation to particular circumstances—such as poor method might commit—seem trivial, after seeing the principle authoritatively ignored in a curriculum issued by the Board of Superintendents. If those who select the subject matter thus disregard local conditions, why should not the teacher? Then, why should not all topics be taught alike? Why should not all children be treated alike, and held for the same results? Why should there even be any individuality in the appearance of the school rooms? (Primary school rooms are strikingly distinguished from kindergarten rooms now by absence of growing plants, pets, and other home-like attractions.) Thus, the key to the excessive uniformity prevailing in the elementary schools is found in the uniform curriculum. There can never be excellent instruction here, so long as the very definition of good instruction is nullified in a thing so prominent as the curriculum.

We are keenly aware that there are many phases of this question that cannot be touched upon here. But one other consideration must be added. The assertion is sure to be heard that uniformity is necessary for administrative purposes. That depends upon what administration is for. If its object is to help secure good instruction; then it is to be condemned if it does not accomplish that end. And, provision for the individuality of pupils and teachers being one of the very standards by which the character of administration must be tested, one of the first duties of the administrators of schools is to overcome the tendency toward uniformity, rather than to establish it. And, if the proposed plan—touching the curriculum—is unsatisfactory to the superintendents of



the city, then the task awaits them of proposing another that has the same purpose, but that is more effective.

### 3. Character of Syllabi

The syllabi, as now printed, accomplish two things in the main; i. e., they amplify the very brief statements contained in the curriculum proper; and they offer directions and suggestions to teachers about method. In brief, they inform merely.

Their purpose seems too narrowly conceived. What they thus present to teachers is in danger of lacking significance, like much of what they recommend that teachers shall present to children. It is fair to expect that leaders in a great system of education will offer their suggestions to teachers in a way that reveals how teaching is a profession, and, hence, in a way to stimulate and encourage. The information given should be subordinated to the uplift furnished.

To this end, the leading working aims and principles of instruction, that control selection of subject matter and method, should be stated. It seems reasonable to assume that, if there are persons who ought to understand, and hold the aims and principles of teaching in mind, it is those persons who are doing the teaching.

And these aims and principles should be so worded and illustrated that their direct influence on practice will be made clear; while the impossibility of there being, in most cases, one fixed and best method touching details will be established. This will involve an appeal to the teacher's judgment in selection of methods. In this way, syllabi, while giving necessary information, might surround the teacher with an atmosphere of freedom, while inspiring her by their breadth of thought.



**THE SUPERVISION BY THE PRINCIPALS**

**FRANK M. McMURRY**

**SUBDIVISION I**

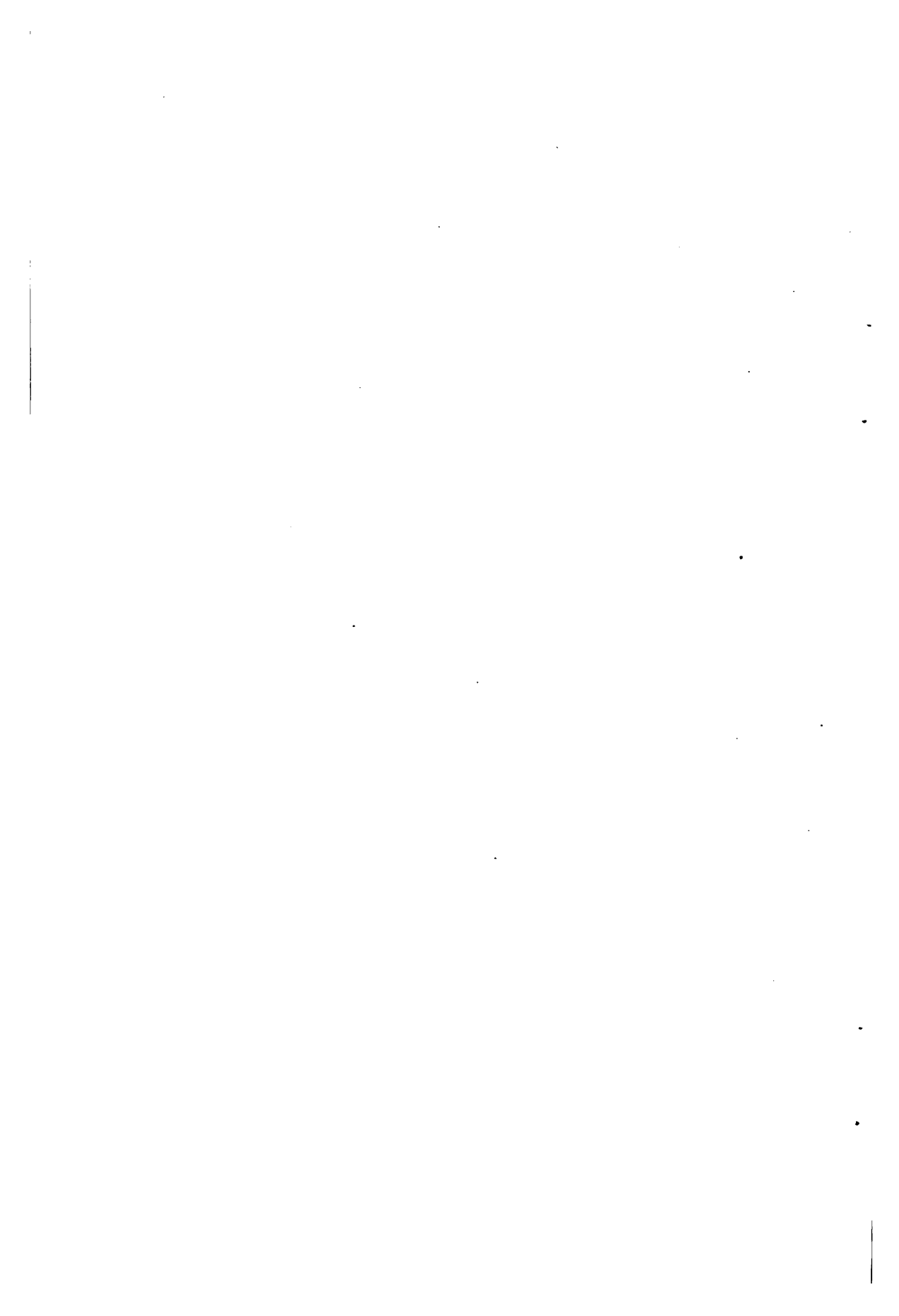
**ELEMENTARY SCHOOLS**

**SECTION C**



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## **SUPERVISION BY PRINCIPALS OF ELEMENTARY SCHOOLS**

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### **A. Standard for Judging Quality of Supervision**

#### **Relation of Principal to Aims of the School**

The principal, as the head of the school, is necessarily in pursuit of whatever aims the school itself stands for. Also the relative importance of these aims must be the same for him as for the teachers, and others identified with their accomplishment. He is merely the leader in bringing them to completion. (A somewhat detailed discussion of these aims is included in Part I of this report, treating standards for judging the quality of classroom instruction in the elementary school, p. 7f.)

#### **His Two Kinds of Duties, and Their Relation to Each Other**

Two kinds of duties confront him from the start, whose relation to each other is of the highest significance. On the one hand, he has to look after the condition of the building, the janitor's service, supplies, and fire drills; to consult with parents and children about tardiness, truancy, other misconduct, and health of pupils; and to advise with teachers about these same things, together with the lighting of rooms, adjustment of seats, care of desks, and books. On the other hand, he is responsible for such an organization of the school as will secure a high moral tone, and for such assistance to teachers as will place the instruction on a high plane. In other words, there is a very large class of duties, that are largely mechanical, that belong to the general manager and business man, in distinction from the educator. And there is another large class, dealing with instruction and the formation of good habits, that are technical in character, calling for skill as an educator. Not all of the principal's duties fall easily in one or the other of these two groups, but in the main the distinction is valid.

Which of these two shall dominate the other, and receive the greater portion of time, is one of the first questions to consider in judging the efficiency of a principal. If he is primarily a business manager, he should be judged as such. If he is primarily a professional leader, he should be judged very differently. The purpose of the school leaves no doubt about the proper decision of this question, for it makes the business management of a school only a prerequisite to its other more important work of education. Proper attention to physical conditions, and to nu-

merous other details of general management, only secures the conditions on which effective instruction and government depend; and it is, therefore, merely a means for which the latter are the ends. This being true, a principal of a school must be closely identified with instruction; and he must be judged, primarily, as a leader in that field; i. e., as a supervisor of instruction.

### **Dependence of Principal on His Teachers**

With a large school under his control, the principal can accomplish comparatively little alone. In organizing the school, so that the active interest of children is enlisted in favor of good order and uplifting conditions, he is directly dependent upon his teachers; and, in presenting ideas so that they shall exert a strong influence on pupils, he must, likewise, work almost entirely through his teachers. His main relationship, as an educational leader, therefore, is to his teachers, and the influence that he exerts upon them, in kind and degree, is the chief measure of his worth to the school.

### **Standard for Judging the Efficiency of a Principal's Supervision**

The leading factors in effective classroom instruction have already been enumerated (pp. 1-3). According to that enumeration, one of the great duties of the teacher is to inspire her pupils to desire to be and do specific things that are worth while. Of course, a vital condition under which this can be accomplished is that the teacher herself be filled with purpose. She must hold the ultimate objects of her instruction in mind continually, and must comprehend the specific purposes of large topics that she is presenting, as well as their relation to those aims that are more distant. Her own enthusiasm and her insight into the relation of the curriculum to active living will greatly affect her influence on the motives of her pupils. One great function of the principal, therefore, is to contribute to her enthusiasm, and to this insight.

We have seen that the teacher should accustom pupils to a careful organization of ideas, for the sake of clearness and force. Of course, her own ideas should exhibit these qualities plainly, in the field of both subject matter and method. This is, by no means, easy; and, therefore, a second duty of the principal is to aid her actively in this whole matter, showing her often how she has failed to secure good organization, and how the failure might have been avoided.

A third task of the classroom teacher is to lead children to weigh the relative values of facts, until considerations of value become as prominent in their intellectual work as in the business world. Of course, the teacher must be constantly alive to varying worths, herself, in order to accomplish this object. Otherwise, she will overlook the whole matter.

A third responsibility of the principal, therefore, is to instill in the



teacher the conviction that he is ever on the lookout for this quality, in his observation of her instruction, and to advise with her frequently about methods of improvement in this direction.

Finally, the teacher is responsible for inculcating a spirit of independence among her pupils, so that they will subordinate the subject matter of instruction to themselves; so that they will think their own thoughts, in their own way; so that they will take the initiative often, and practice self-reliance in other ways also. The teacher cannot do this, cannot secure self-expression, unless she, herself, is practicing it; unless she is clearly conscious of her own freedom to say and do what she sincerely believes in. It is the duty of the principal, therefore, to surround the teacher with such an atmosphere as will encourage her to think her own thoughts, and to express them frankly, i. e., to be her normal self; also to impress upon her that he is ever watchful of her provision for self-expression among her pupils.

In brief, the principal, as a professional leader, is working for the same ends as the classroom teacher, but his pupils are the teachers themselves. His worth is to be judged, primarily, by his skill as a leader, as a teacher of teachers, just as theirs is to be judged by their skill as teachers of children. Thus, his first duty is to his teachers, to help them grow professionally.

And, in the performance of this duty, he is subject to all the principles of method to which they are subject, and should illustrate them continually in his contact with them. For that reason, he cannot be merely a judge of instruction, an inspector; for, as such, he only passes upon the quality of a teacher's work, without aiding her greatly to improve. Nor can he be a dictator, merely giving her directions about what to do; for as such he emphasizes obedience in intellectual matters, and thus puts restraint about her, while it is his duty to make her feel free. He is prevented from assuming these relations to his teachers, for the same reasons that they are prevented from assuming them toward their pupils. His general relation to his teachers, therefore, is that of an adviser, basing his advice on reason, and granting their right to reject it. This relationship is especially worthy of emphasis in a great system of schools, where uniformity in matters not pertaining to instruction is of the highest importance.

With the attitude of an adviser, he must prove helpful to his teachers by connecting the details of their classroom instruction with the aims and principles of education; to the extent that he can do this, and, according to the spirit in which he does it, he is efficient as an educational leader or supervisor.

## **B. Application of This Standard**

### **Proportion of Time Spent in Supervision**

In October, 1911, we sent a questionnaire to eighty-three elementary school principals, one of the questions touching upon the proportion of time spent by the principal on administration and on supervision. Thirty-two of the replies, taken at random from Brooklyn, Manhattan, and the Bronx, show an average of approximately two-thirds of the entire school time spent in administrative duties, as distinguished from the work of supervision.

### **Character of the Supervision**

#### **1. As Learned by Observation, and by Interviews with Principals**

Let us now consider the character of the supervision that takes place. The principals have uniformly responded very readily to our requests for information about the principals' work. One of the requests was the privilege of accompanying the principal as he supervised, and listening to any remarks that he made, either to the teacher before her class, or to her class in her presence, or to the teacher in private after her class was dismissed. Many extremely interesting observations were thus made, and, while it should be borne in mind that there are exceptions to many of the statements immediately following, possibly to every one, the facts collected indicate the prevalence of the following four practices:

a. The amount of time spent by a principal with any one teacher, at any one time, is extremely small. For example, one principal, when asked what his plan of supervision was, replied: "I am busy with administrative matters from 9 till 10.30 a. m. Then I regularly spend one hour in supervision." "What do you do?" was asked. "I make the rounds, visiting each room." "How many rooms have you?" "Fifty-two," was the reply. Many principals thus plan to "make the rounds" every day, spending a minute or two in each room, occupying at least half of their entire time for supervision in this way.

Invariably, when the principal was asked to allow the visitor to accompany him on his tour of supervision, the principal was requested to follow his usual plan and remain as long in any one room as he ordinarily would. In this way, often five, six, and seven rooms in one school were visited. Taking all the visits together, the average time was probably not over six minutes. Very seldom did any principal care to remain longer than ten minutes with one teacher.

b. Although the principal was asked to allow the visitor to hear any remarks that he might make to any teacher, as a rule, no remarks were made. One principal stated, in starting out: "Of course, I shall

not say anything unless something is going wrong," and nothing proved to be going wrong. Almost every principal was plainly welcome in each room, as judged by the attitude of teacher and pupils, and he usually seemed in sympathy with the instruction; but silence was his rule. Of course, some, and, perhaps, much, of this quiet may have been due to the presence of a visitor.

c. Naturally, most of the remarks that were made were offered in the privacy of the principal's office. One striking characteristic of those interviews with individual teachers was, again, their shortness. They seldom lasted more than three or four minutes.

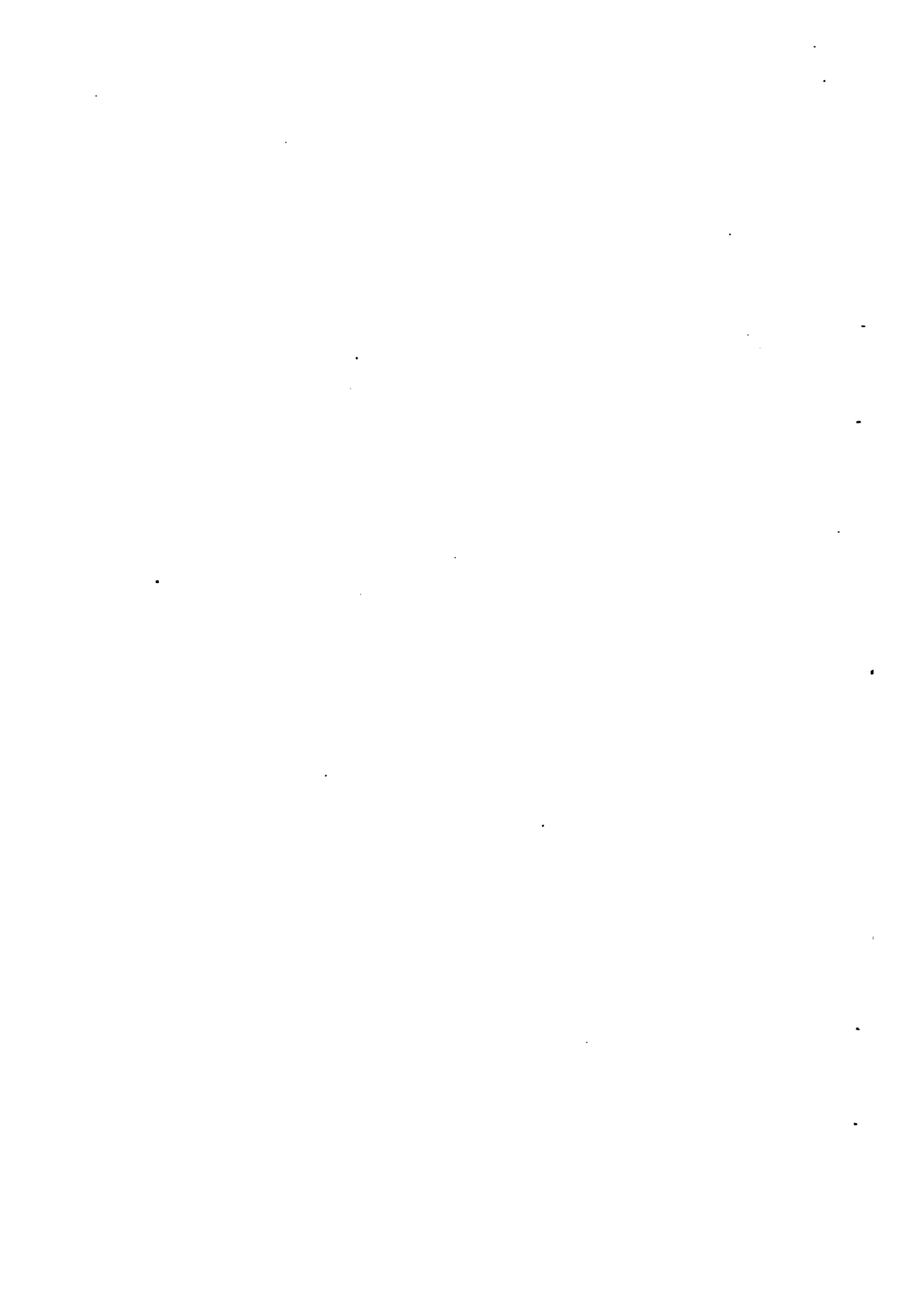
d. The final fact of interest was the content of the remarks. Most of the principals showed great tact in freeing the teachers from embarrassment. But, usually, the principal had set aside no time for special preparation for the interview; and he apparently felt no need of special study for it, since he made no request for time for reflection. What was said, therefore, touched only such matters as came at first thought; the points were, necessarily, few in number, they were introduced without much reference to organization, and they received no fundamental treatment. There was, usually, no sign that any particular question was being followed up in the various grades, or with a particular teacher. Also, the conviction seemed to be common that, on account of the large number of teachers, only a few minutes should be spent in conference with any one teacher.

## **2. As Learned Through Reports from Teachers**

Altogether, not less than one hundred teachers, representing all parts of the city, have expressed their opinion about the helpfulness of the supervision of their instruction by principals, in ways that have been of service to us. Many of these teachers have known at the time that their statements were to be used; many others have been entirely unconscious of the fact. Much care has been used to secure as extensive and representative an expression of opinion as possible.

### **a. Statements Concerning Individual Help Received**

One teacher of an 8B class, when asked to what extent he had received helpful suggestions from higher authorities, replied, "No help at all." He had been nearly thirty years in the system. Another teacher, who had been asked four or five questions by the visitor about his plan of work, when asked the further question, "How often and how long has any principal or superintendent discussed your instruction with you, either its method, or the selection of subject matter?" replied, "Practically not at all." Then he added, "You have shown more curiosity, and have quizzed me and talked with me longer than have all the principals and superintendents in my twenty-one years of experience in the New York City system."



to the nature of principals' conferences are agreed that instruction occupies a very small place in them; that discussion in them is rare, and that they depress, rather than stimulate, the teachers.

### **C. Facts Indicating That These Conditions Are Representative of the City at Large**

The preceding statements are the results of reports from observations and interviews with a small minority of the entire teaching force in the city. Taken alone, therefore, they cannot be regarded as sufficient basis for general conclusions, in regard to the supervision by principals. What other facts can be offered, that either tend to support these statements, or to disprove them? There are several.

#### **1. Prominence of Administrative Duties of Principals and Its Effect**

The first facts bear on the prominence of administrative duties of principals. As already stated, it is probable that two-thirds of all the time and energy of principals is devoted to these duties especially. In a city growing as rapidly as Greater New York there is temptation to spend all one's efforts in this direction; and, unless one clearly distinguishes between the two kinds of work, administration and supervision, and energetically subordinates the one to the other, the temptation will not be overcome. Reports received from principals themselves (referred to on p. 130), show that some of them attempt no distinction between these two classes of duties. If, then, they do whatever at the time seems most pressing, they are almost sure to exhaust themselves in the details of administration.

But many principals who make some distinction here, and who greatly desire to identify themselves extensively with instruction, admit that it is impossible to do so, owing to the more immediate pressure of other tasks. Every principal, for example, is held directly responsible for the correctness of all reports that issue from his school. Even in signing the salary sheet, he must certify that none of the regulations, by-laws, etc., has been violated; or that all violations have been reported. He must report on the condition of the building, on heating, ventilation, cleanliness, repairs, seating, lighting, fire drills; must make out estimates of supplies needed, must see to their distribution and adjustment; must interview parents; must know absentees and follow up cases of truancy, and attend to other cases of misconduct. Besides all this, he must see to the execution of a large number of directions from higher school authorities. He must attend to all these matters and more, quite apart from those pertaining directly to instruction. Also his efficiency as a principal, he believes, is likely to be judged by his superior officers, primarily by his promptness and accuracy in regard to these

more mechanical, but tangible matters; for that reason he is almost compelled to consume his energies in things external to instruction.

## 2. Great Size of Many Schools and Its Effect

The large size of many of the schools—some having between 4,000 and 5,000 children—greatly intensifies this difficulty. The principals interviewed have expressed themselves, almost unanimously, as to the proper size; maintaining that a school should number only so many teachers as the personal acquaintance and influence of the principal can effectively reach; and the outside limit is about thirty, with 1,500 children. Many would much prefer to limit the number of children to 1,000.

This is a very serious matter; for, the larger the school, the greater the pressure on the principal to do solely administrative work. The furnishing of assistant principals, one to every twenty teachers or so, beyond twenty-eight, is by no means a remedy for this evil. One reason is that many of these assistant principals are spending most of their time in clerical or other routine work. Being assistants, under the direction of the principal, they assist him in doing the work that is most pressing upon him. There is great waste of money at this point, in allowing assistant principals to do work at two to three times the rate of pay that the work itself requires.

But a deeper reason for the failure of a plan, which assumes that assistant principals can do the work of a principal, is that active supervision of instruction is something that cannot be easily delegated. While the criticism of instruction, whether positive or negative, should be based on technical reasons, rather than on authority, it constantly involves personal relations; it often severely tests temper, as well as respect for ability. It is the most natural thing in the world for a teacher who is adversely criticized to question the fitness of an assistant to act as critic, when, if that same assistant were principal in full charge, there would be no question. A teacher, therefore, may be inclined to appeal over the head of the assistant, to the principal himself, to settle a disagreement, or, at least, to show disrespect for an assistant. This tendency necessarily makes the assistant principal very wary about offering any negative criticism, and some omit it entirely on that account. It should be remembered, too, that almost every assistant principal is looking forward to a principalship—an ambition that is laudable, but one that does not tend to eliminate friction between the principal and an assistant.

Further, the very attitude of supervisors toward education is affected by the size of a school. If a school is small enough to allow personal relations to prevail, it seems reasonable to strive toward recognition of the individuality of both teachers and pupils. But let the number of pupils rise into thousands and it begins to seem hopeless to try to make provision for the individual qualities of anybody. The larger the school,

the more nearly the factory spirit is approached. The absolute necessity of mass action in all external matters is self-evident; and that spirit is carried over directly into the instruction itself. Thus, the very ideals of supervisors—both as to the characteristics of good instruction, and as to what they themselves shall stand for with their teachers—are seriously affected by the size of the schools.

In brief, supervision of instruction in the smaller schools is largely crowded out by administrative duties; but, in the larger schools, supervision is necessarily even less efficient.

### **3. Lack of Authority Among Principals and Its Effect**

Remembering that much less than half of the time and energy of principals goes to supervision, nominally the main thing, let us consider the degree of freedom that the principal enjoys to do what he believes to be needed in his school, as far as he has time.

#### **a. Lack of Authority as to Lines of Study**

The separate lines of work, called studies, that are pursued in each grade, are determined by the Board of Superintendents. Aside from one slight option in the eighth grade, the principal has no authority in this matter.

#### **b. Lack of Authority as to Content of Each Branch of Study**

What the subject matter shall be, in each subject, is also determined for him. Section 40 (paragraph 8), of the by-laws of the Board of Education, declares that, "The Board of Superintendents shall, from time to time, issue syllabuses in the various branches taught, which shall be regarded as the minimum amount of work required in such branches." At the beginning of the course in mathematics is the statement that "Both the course of study and the syllabus provide for minimum requirements"; and, while most of the other courses and syllabi contain no such specific statement; and, while some of the branches, beyond question, contain too much subject matter to be followed closely, the general understanding, as stated to us both by principals and teachers, is that the above by-law is to be obeyed as nearly as possible. In other words, the principal has practically no authority as to the content of the various subjects in the curriculum.

#### **c. Lack of Authority as to Amount of Time for Each Study**

The number of minutes per week to be devoted to each subject of study is also largely fixed for the principal by the Board of Superintendents. Where there is likely to be some doubt about how the time should

be divided, in case a subject is not taught every day, even the exact length of each period of recitation is also fixed. For example, in the seventh year there are 120 minutes per week allowed for geography, and this must be divided into *three* periods. Some of the superintendents have stated that the principal is given great freedom in time allotment for studies, owing to the number of minutes per week set aside for "study and unassigned time." There is such a provision, and the maximum amount per week of such time, for any one grade, is 235 minutes in the seventh year. But, in all grades above the third, thirty minutes of this time per day, or 150 per week, is set aside by the superintendents for study of such subjects as require preparation. That leaves 85 minutes per week, or 17 per day, as the maximum amount in these five grades that can freely be assigned by the principal. The amount allowed in the first three grades ranges from 35 to 42 minutes per day. Thus, it is seen that the principal is given only a slight degree of freedom in allotting time to the several branches of study.

#### **d. Lack of Authority as to Method of Teaching**

The two topics dealt with in the various syllabi are subject matter and method, the latter occupying, probably, somewhat more than half the space.

In treating of method, for the benefit of teachers, one feasible plan is to state those aims and principles that most directly influence method, and then to show their influence by means of illustrations. In this way the controlling factors in the presentation of ideas are made clear, while the teachers are left entirely free as to details. There is little suggestion of this kind of procedure in the New York City syllabi.

Another plan, that still allows much freedom, is to omit reference to aims and principles, but to present several ways of treating a topic, from among which teachers may choose what most appeals to them. In this way teachers are likely to get glimpses of controlling aims and principles, even though these are not definitely stated; and they receive some guidance, while left free from narrow restraint. That is not the plan followed in the New York City syllabi.

A third plan is to omit reference to aims and principles, and to offer only one way of presenting a topic, with the strong suggestion that that way be followed. That fails utterly to dignify teaching, to be sure, and limits the teachers very narrowly. But that is the plan essentially followed throughout the New York City syllabi.

One important standard for judging excellence in the method of teaching a topic is found in the extent to which the presentation is affected by the particular conditions in a given class. Yet, such a standard in these syllabi is conspicuously absent. In providing the same curriculum for all schools of the city, practically without suggestion of variation, according to particular conditions, the school authorities have aban-



done all idea of adaptation to individual circumstances, as far as they well could. In the syllabi dealing with method the same spirit is in control; for there is a strikingly prevalent desire shown there to have particular topics taught the same way in all the schools. For example, there is a general plan, consisting of three steps, "for the appreciative reading of a masterpiece" in literature; another plan, consisting of three steps, in composition, "for a study of a specimen of narration, description, exposition, and familiar letters selected from literature"; another plan, consisting of eight steps, in geography, for "studying a country"; and another, in arithmetic, consisting of eight steps, for "learning the combinations of each table." Why there should be this uniformity is not discussed; but that the desire for it is strong is evident.

It should be remembered that these plans are only "suggested," not required, in the syllabi, and the idea that particular procedures are "required" is distinctly disclaimed in some places. But, in the majority of cases where specific directions are given, the word *should* is used; for example, in history, in the 6th and 7th years, the syllabi state that, "no notes should be dictated by the teacher, nor should home study be required of pupils." In a few places, too, in the midst of such directions, a given method is declared to be "optional," which makes one question the optional character of the others.

The degree of restraint placed upon teachers by these specific directions depends upon how seriously the teachers interpret them. The testimony of principals and teachers, and our own observation, justify the assertion that the teachers, as a body, have learned to take them quite seriously. It is evident, therefore, that in the field of method, as well as in adaptations of the curriculum, the efforts of principals are forestalled by the syllabi. The main points in method are already determined for them when they take charge of their schools.

#### **e. Diminished Authority Due to District Superintendents and Special Supervisors**

Diminished authority among principals, owing to the relation that District Superintendents bear to them, is another matter of importance. First of all, it should be remembered that the District Superintendent rates the principals under him each year, and that such rating is an influential factor in the principal's promotion in position and salary. The principal is, thus, directly subject to the District Superintendent.

Meanwhile, the District Superintendent is directly related to the teachers themselves. He is required to rate them, also, each year, and his rating is a very influential factor in their promotion. He does not necessarily reach the teachers through the principals; in fact, he very often dictates to them about method directly. In addition, when teachers are dissatisfied with a principal's ruling, they can appeal over the principal's head to the District Superintendent.

The effect of this situation upon the teachers is very definite; i. e., they are inclined to look to the District Superintendent, rather than to the principal, as their head, so that the real center of gravity of the school is placed entirely outside of the school itself.

For example, here and there principals are found who do not believe in having teachers keep Plan and Progress books, i. e., plans of work, and records of work accomplished. But, if a given District Superintendent requires them, they must be kept by the teachers. Again, here and there are principals who are opposed to one fixed plan of teaching all countries in geography, or all classic selections in literature. But, if the District Superintendent is known to expect such plans, the teachers feel the necessity of obeying. In that case, also, the principal may also yield, for one of his duties is to protect his teachers against the mark, C, from the District Superintendent. Occasionally, a principal has admitted that he helps his teachers, as far as he can—against his own convictions of what is sound—to prepare the children for the exact kind of test that the District Superintendent is known to give. During the time not required for that, he attempts a very different kind of work with his teachers, in accordance with his own ideas. Thus the syllabi touching method are seen to be binding on principals, as well as on teachers.

The requirements of the District Superintendent are by no means confined to the statements in the syllabi. The occasional conferences that the District Superintendents hold, whether of principals or teachers, occupy the time mainly with directions about routine matters, or with the more mechanical phases of instruction. But even when the vital factors of instruction are treated, the Superintendent's method is usually the same, i. e., desired changes are dictated, that presuppose obedience on the part of all concerned, rather than scrutiny and discussion. Thus it is seen that not only is there a lack of real educational leadership on the part of the District Superintendents, but an influence is exerted by them that seriously limits the freedom of the principals.

The principal's helplessness is, perhaps, most evident in his relation to special supervisors. In a certain third grade the regular teacher was holding a recitation in music, in which the entire time was occupied with drill upon certain notes. When asked why she so emphasized the technique, she replied that she did not believe in it, but that there were twenty cards with notes that the pupils were expected to master in her grade, and that this work consumed all the time. Later, the principal, in talking over the music, likewise opposed the plan, but stated that he was powerless to modify it. So here was a situation in which the principal and the regular class teacher, who were primarily responsible for the welfare of those children, were following a plan to which both were opposed. That is not unusual. It would seem reasonable that a principal, as the head of a school, and as the representative of the principles of general method, would be given an active voice in the control of the

method of each subject taught in his school. This is especially important, when we recall the well-known fact that persons specializing in particular subjects so often have little acquaintance with the broader aspects of education, and, on that account, overlook many of the larger principles that should govern their own work.

One would think that the principals of the elementary schools, approximately 500 in number, could, by combining, exert a powerful influence upon their own status and the entire educational situation. But there is no established avenue of approach to the school authorities that are over them. In their meetings, from time to time, they have reached conclusions and sent in recommendations to these higher authorities, but usually without result, and very often without recognition. This has happened so often that, in a recent meeting of principals, consisting of sixty to seventy-five persons, the following statement was agreed to almost unanimously as representing their view, touching their relation to the authorities over them:

"The impression has been created among principals that individual principals, who have been so fortunate as to seem to have done some notably effective work, might hope for recognition or even consultation; but that any body of opinion formed at a conference of principals is not to be encouraged."

On account of the power of the District Superintendent over the school, some of the principals assert outright that, instead of being the primary authority in their schools, they are merely agents of the District Superintendents; and many of the principals feel a very serious lack of freedom on account of this influence.

#### **4. The Frequency and Manner of the Rating of the Teachers, and Effects**

One of the by-laws of the Board of Education (section 41, paragraph 10) requires that the District Superintendent rate every teacher in his district at least once per year. This rating forms a very important part of the basis for judging the excellence of a teacher and, consequently, her right to promotion. Since a District Superintendent, on the average, has charge of about 700 teachers, it is evident that he must spend a large part of his time merely in *judging* teachers; he becomes, thereby, an inspector rather than a supervisor, trying to discover what is, rather than endeavoring to improve it. Ordinarily, there is no understanding that he visits teachers in order to help them. It is very common to hear teachers say that they have never known of a case where a District Superintendent talked over a teacher's instruction with her, in order to help her. And, since he can spend only a few minutes with any one teacher, the impression that he receives in that short time becomes a matter of great moment. Commonly, when he enters a building, word of his arrival is passed rapidly about, and the one absolute requirement, as the teachers state it, is that the recitation shall go "déd

smooth" in his presence. The reason for rehearsing these facts here is to show that the prominence thus given to the rating of teachers tends strongly to focus the attention of the entire staff of teachers upon it, so that it is difficult for the principal to interest them actively in phases of instruction not concerned with such rating.

Next, observe the basis of the rating.

Each teacher is supposedly marked for renewal of license on a list of seventeen points, which, on that account, exert a marked influence on the quality of instruction; the list used for later promotion of teachers is almost exactly the same, with a few additional points.

The seventeen points are as follows:

1. Ability to comprehend instructions.
2. Ability to coöperate with other teachers.
3. Skill in blackboard work.
4. Skill in questioning.
5. Skill in presentation.
6. Use of objective illustration.
7. Power to interest.
8. Thoroughness of drill.
9. Self-control and manners.
10. Use of English language.
11. Use of voice.
12. Attendance.
13. Punctuality.
14. Personal tidiness.
15. Accuracy in keeping records and making reports.
16. Control of class.
17. Energy and success in self-improvement.

The first important fact about this list is the things that it does *not* include. For example, if a teacher has established a close personal relation with her pupils, that merit finds no direct recognition in this list. If she is working with them individually, to an unusual degree, or is especially successful in developing their self-reliance, or is distributing the work unusually well among them, or is leading them to appreciate the relative values of facts carefully; or, if she is herself organizing the subject matter with care, or showing rare originality or enthusiasm, no one of these points has a definite place in this list. To excel in these respects, therefore, does not plainly count, while excellence on the listed points does count. Naturally, then, since all teachers must be marked on the same basis, it becomes advisable for them to follow the list closely. The important fact again, concerning supervision, is that this list largely determines the prevailing characteristics of instruction, whether the principal so desires or not.

Here, then, is a plan according to which a marking system is made

very prominent, and the basis on which marks are given is made extremely narrow. The effect upon supervision by the principal is that he must sympathize with the teachers in their attention to these tests—or be out of touch with them—and, with his eye on this list of points for marking, he must limit his efforts, largely, to its scope.

Yet, the greatest evil in the general plan is hardly the excessive prominence of tests—although one must ask why they should be so prominent, when they certainly are not a help to teachers, and a large portion of the teachers, in many a school, in a given year are not in line for renewal of license, or for promotion, during that year.

Nor is the principal evil found in the fact that the list of points, on which teachers are marked, is merely incomplete. A list could never be made to include all elements of good instruction, unless it became so long that it would cease entirely to be usable.

The most serious evil—because most fundamental—is the general point of view toward education, that is shown in this list. In the first place, there is the assumption here that the value of instruction should be judged on the basis of the elements that immediately compose it.

Educators get a hint of the inadequacy of this plan by their experience in filling out recommendation blanks from teachers' agencies. Striking facts about the performance of that task are the rapidity and thoughtlessness with which it is usually done and the worthlessness of the statements made.

But instruction cannot be safely judged on the basis of the factors that compose it. We judge of a house by considering the purposes for which it was built. We judge of a machine in the same way, and even of an oration. Instruction should be rated in a similar manner. As stated in the discussion of standards for judging the quality of teaching (p. 7), the main purposes to be accomplished must form the standards by which its excellence shall be determined. The purposes suggested in that connection were: (1) the cultivation of ambitions, purposes, or motives on the part of children; (2) the organization of subject matter; (3) the weighing of relative values among facts; (4) and, finally, the exercise of initiative or self-reliance on their part.

A hasty perusal shows how completely this list of seventeen points fails to suggest any of the purposes of teaching. The defect, then, is not that the list is incomplete, but that such elements of instruction are not the principal things to observe. A detailed list might occasionally be used by a supervisor for reference, simply to make sure that he was not entirely overlooking some of the minor things in teaching; but that is probably as far as its value reaches.

The queries suggested in this list can be easily and, perhaps, correctly answered by a supervisor with almost no study. And even though the answers be correct, the main features of the recitation, whether good or bad, may still have been ignored. The explanation is that the things that decide the quality of instruction are found in the relation that *its*

*elements bear to its purposes*; and we may see its elements clearly without considering this relationship, just as one may clearly understand the meaning of every sentence in a paragraph without grasping its central thought.

Thirty years ago, certain teachers of geography in a western state took great pride in their board work in geography; in the drawing of a continent, for example, location was accurately determined by numerous parallels of latitude, and by meridians; the coast line was made very heavy by rolling the chalk on its sharp edge against the board, and then the coast was shaded, by at least a dozen carefully drawn lines. It was excellent board work, one map often requiring several hours. In fact, it was too good; and, in one case, the Board of Trustees forbade the practice, on the ground that the purposes of the instruction did not warrant so much work of that sort. The teachers had become so absorbed in the details, that they had forgotten what the details were for. The writer calls to mind a certain recitation that was rated as admirable by a number of experienced superintendents, until they turned their attention from the teacher's manner, and from the details of the process, to the *objects* that it was supposed to accomplish. Then it was discovered that it had not accomplished the purposes of a literature recitation, and, also, that it had not accomplished those of a recitation in reading, although it had avowedly been a recitation in one or the other. It was, accordingly, finally judged a failure. The same thing happens with many a recitation that seems good in its details. Similarly, some recitations, that seem poor in their elements, are found to be excellent, when judged in the light of their principal purposes.

The very ease with which this New York City blank can be filled out should make one suspicious of its worth. The judging of instruction is not so mechanical a task, nor so simple. One must approach a recitation with the main objects in mind that the recitation is to accomplish, and ever hold them in mind; that is the first requisite; then one must trace the connection between the means adopted and these ends. That is a task that varies greatly with each study and with almost every new recitation, and one that almost always requires careful study.

This New York City list, therefore, has an injurious effect on the supervision of the elementary schools, because it influences the principal—who must assist the District Superintendent in evaluating instruction—to judge the worth of teaching, without reference to the standards that determine worth; and, by keeping this up, he becomes so occupied with the details of instruction that he loses sight of the very purposes of instruction, and of the school, as a whole. One of the striking facts about the elementary schools here is the disregard of the higher aims of instruction. Also, any principal or superintendent who spends much of his time marking teachers on the basis of such a detailed list—not hav-

ing approached his task in a way that compels him to think deeply—will become less thoughtful every year, until he will cease to be a leader.

There is another peculiarity of this list that is almost as serious as its superficiality; and that is its strong suggestion that instruction is to be judged almost solely in terms of what the teacher does. It is the *teacher's* self-control and manners; the *teacher's* skill in blackboard work; the *teacher's* use of English; the *teacher's* personal tidiness; the *teacher's* power, accuracy, etc., etc., that shall be considered. Now, why should the teacher thus be the whole object of attention? If the children's conduct is the thing we are after, why should not that be the primary object of consideration in class? In other words, instruction in the main should be judged in terms, not of what the teacher does, but of what the child does. The principal standard for judging instruction, therefore, should consist of an enumeration of its few leading purposes; and these should be expressed in terms of the pupil's activity. It is the *children's* motives that we are primarily interested in; the *children's* organization of ideas, their weighing of values, and their exercise of initiative.

Here, then, is the situation in these elementary schools. Independently of the principal the rating of his teachers is made very prominent. The basis of this rating directs the attention of all concerned away from the aims of instruction to its details alone; and it is stated in terms of the teacher's activity, not of the pupil's. If a high-minded progressive principal takes charge of a school, determined to improve his teachers, he has the task of focusing their attention away from these examinations; away from the details of this list, to the high objects of teaching, and away from their own activity to that of their pupils'. Here is a partial explanation of the fact that instruction in the city is on so low a plane. (See page 47.)

### 5. Lack of Theory as to Method of Supervising

An additional point throwing light on the efficiency of supervision by principals is found in the extent to which the theory of supervision appears to be developed among them. But it should be remembered that, if there is a lack of such theory, they are no worse off than most principals elsewhere, since there is little literature bearing on the subject. Going directly to the root of the matter—if the principals as a body were asked the question, "What plan have you for the preservation and development of the individuality of your teachers, so that they in turn can the better preserve and develop the individuality of their pupils?" a very great majority of them—so far as the observations of the visitors allow a conclusion—would have practically no answer.

The use of model teaching by principals has already been mentioned on page 132; and further improvement of teachers by a principal is usually based on observation of their teaching. The little use made of

such observation as a source of valuable material for conferences with the entire corps of teachers has already been referred to (page 131). Yet it should be remembered that the want of well-developed plans in this respect is not altogether chargeable against the principals themselves. Administrative detail is ever pressing upon them; indeed, so much of it is communicated to them by their superior officers with the object of its being communicated to the teachers that, when principals find the teachers together, they cannot easily avoid the temptation to occupy the time with office routine.

But the possibilities of the improvement of teachers through supervision that aims at discussion of their instruction—much of it individual discussion—are great. What theory prevails among the principals in regard to that kind of supervision?

Let us first see what some of the theory might be, irrespective of actual conditions.

There is one plan of observation and discussion that may, perhaps, most suitably be called *intensive*. According to it, the supervisor, impressed with the fact that thirty minutes of instruction involves a good share of all the factors that there are in teaching—just as a thirty-minute interview with a man will reveal a good share of all the factors in his character—makes the whole of a recitation his smallest unit of observation, during a good portion of his visits with teachers. And, desiring to impress his teachers with his conception of the magnitude of a single instruction period, he subjects each one that he witnesses to study, endeavoring to discover how it was related to the aims and principles of education, wherein it was strong, wherein weak, and wherein it might have been improved. Such questions can seldom be answered offhand. And, in trying to accomplish his purpose, he remembers that he is also a teacher, in this case a teacher of teachers, and therefore subject to the same general requirements of good presentation to which the teacher herself is subject in class.

In the *first* place, then, his criticism will be as adverse as the situation requires; but it must also be constructive. Earnest teachers are not seeking mere praise; they want help. And they will raise no objection to adverse criticism, if valuable constructive criticism follows.

*Second:* The criticisms offered, both adverse and constructive, are helpful largely to the extent that they are based on reasons—such as aims and principles of education—rather than on personal authority. To ignore this fact and base statements on personal opinion quickly arouses antagonism and defeats the objects aimed at.

*Third:* Since the principal is desiring to influence the teacher's conduct in class, he has chosen a most difficult task, and his ideas must be presented with all possible force. They must, therefore, be so arranged that all those bearing upon a particular point are brought together in good sequence; there must be enough of them, too, to produce a cumulative effect. And all of them, taken together, must be so ordered



that the main suggestions seem few and simple. In short, the principal's ideas must be so *organized* as to produce conviction.

*Fourth:* The lecture form of presentation is as unfitting for him as for the teachers. The teacher does not care to be lectured to; that is too unpedagogical and undemocratic. Hence, the principal should raise questions and participate in the answers through discussion.

So much for a very brief outline of the theory. This is the plan of helping teachers followed more or less closely in some of our training schools for teachers, and it is probably the most effective one there is. The objection to it is that it involves much work for the principal. But, strange to say, that is its advantage. It presupposes that the principal, by virtue of his position, must be a real student of instruction. And that is what the great mass of principals are *not*. Even if a man is thoroughly progressive at the time he takes a position as principal or superintendent, unless he adopts a plan of supervision that compels him to study instruction intently, he gradually loses what grip he originally had on real education, and becomes a general manager, though still called an educator.

This plan of supervision is not entirely unknown in New York City, but we have seen no indication that it is generally accepted even as an ideal.

There is another plan, most suitably called *extensive* in contrast with the preceding, according to which the principal takes for his unit of study not the whole recitation, but some important feature of it, such as the form of the teacher's questions, or the proper use of voice, or clear enunciation, or the fullness of responses by children. According to that plan a principal may remain with one teacher only long enough to observe her practice in this one respect; then he may talk over the observations made, under the influence of the same standards, as to his method, as in the former case. This method accords more fully with the established habit in New York City of principals moving, at short intervals, from room to room, and it seems wider in scope, as well as easier. But to the extent that it is easier it is likely to be more superficial. For constructive criticism of many of these seemingly easy single features requires the observation of the whole recitation together with much study afterward. For example, take the form of a teacher's questions. By listening only a few moments to a teacher the principal may observe that her questions are poor. But if he desires to show her what the leading half dozen questions in the teaching of a given topic should actually be, he must make a careful study of that whole topic, and one of the best helps for that is for him to hear the entire recitation as the teacher conducts it.

This plan is occasionally advocated by a principal in New York City, but it is not widely prevalent.

The theory of supervision—so far as there is one—that tends most fully to prevail can be most clearly understood by an illustration. A

principal conducted the visitor through six classes, remaining perhaps six to seven minutes in each, on the average. At the end of that time the visitor felt confused as to what could possibly have been accomplished by the principal's visits, the visitor himself having seen too little of nearly every recitation even to judge its quality, to say nothing of giving constructive criticisms upon it. But discussion greatly cleared the confusion, as was shown by the following conversation at the close: Visitor—"Is this, then, your plan? In the teaching of a topic there is a certain series of steps to go through, an established procedure to follow, and you have instructed your teachers until they understand what that series or procedure is?" Principal—"Yes, that is it exactly." Visitor—"Then by visiting a teacher only a very few minutes, you can tell whether or not she is following that series, and can consequently judge how the work is going?" Principal—"Yes, that is just it." Visitor—"What portion, perhaps, of all the instruction in your school can be judged in this way?" Principal—"Perhaps one-half of it."

A visit to one of the rooms—a third grade—in which the pupils were memorizing a poem had helped to illustrate this plan. To the visitor the young teacher had seemed to be doing reasonably well. But the principal, after perhaps two minutes of observation, appearing to be dissatisfied, himself took charge of the class and taught for ten to fifteen minutes. Afterward, when asked by the visitor why he had taken the class, he replied, in substance: "Did you not observe that the teacher was standing in the back part of the room? A teacher, when a class is memorizing, should never stand in the back part of the room except (a), (b), (c). (The writer remembers that there were three exceptions, although what they were he cannot recall.) Then did you not observe that the stanza had not been written on the blackboard? It is one of my rules that the gem to be memorized shall be placed on the board in front of the class, so that all eyes can be looking in the same direction at one time." (Each child had the poem in hand in print in his textbook at the time.) The principal on taking charge of the class had immediately placed himself in front of it, had asked the teacher to write the stanza on the board, and had then proceeded through six to seven more "steps," which could be included here did they not take up too much space. A typewritten copy of the entire procedure—the same as had been furnished to the teachers—was handed to the visitor before his leaving the building.

Here, then, is a theory of supervision according to which all teachers, after having been instructed to teach a given topic in the same way, are tested by the principals' visits as to their faithfulness in following that method.

While no one theory of supervision can be said to be general in New York City, and while the writer has not personally discovered a large number of principals devoted to this plan, there are reasons for believing it to be the most generally accepted plan in the city.

One of these reasons is that the syllabi, issued by the Board of Superintendents, who determine the controlling educational theories for the entire system to a remarkable degree, hold out, as already stated (page 114), such uniformity of method as a duty. A second reason is that the District Superintendents, if not unanimously in favor of such uniformity, still individually not only support these recommendations of the syllabi by insisting upon them in practice, but they also add others of the same kind to them freely. A third reason is that great numbers of teachers assert that obedience on their part is their prime virtue in the eyes of their superior officers; and the fact that "ability to comprehend instructions"—which, according to the teachers, includes "willingness to obey," between the lines—heads the list of points on which their success is rated, and their salaries determined, lends color to this assertion.

In brief, uniformity—of curriculum, and also of method—is at a great premium in New York City. And, in consequence, it is natural to expect to find the theory of supervision by principals based on that idea.

The extent to which this plan really helps the teacher to give expression to her own individuality and thus improve her in a fundamental way needs no extensive discussion.

Neither the voluntary reports sent by the principals to the Board of Superintendents in the last five years nor the reports called for by that Board in that time show concern about either the theory or practice of supervision of instruction in the city.

#### **D. Conclusions in Regard to Quality of Supervision by Principals**

While the main effort of a principal of a school should be directed to the improvement of the instruction, the main efforts of principals in New York City are directed to other matters than instruction. Most of the principals themselves readily admit this.

Assuming that principals, in the time that they do devote to the supervision of instruction, are under obligations to improve teachers in their instruction, we have found, through observation of principals and interviews with them, that generally they are in the habit of spending very few minutes at any one time with any one teacher; that, as a rule, no remarks are made to the teacher about the work observed; and that what remarks are made are extremely brief, unstudied, unorganized, and little related to the aims and principles of education; and therefore that the principals are not supervising in a way that shows them to be real students of instruction, or that greatly aids the teachers.

Through interviews with teachers we have found that they very commonly deny having received positive aid in instruction from their principals, either separately or collectively, and there is a strong tendency for them to deny also that freedom of discussion is allowed them.

The details on which these conclusions have been based have been

verified by a study of several factors that necessarily greatly influence the extent and quality of supervision by principals. There are five of these factors.

The *first* pertains to the prominence of administrative duties. It has been found that little distinction has been made in practice between these duties and the supervising duties of principals, so that principals might be on their guard against subordinating the latter to the former. Also, that, even if they were thus put on their guard, the number of administrative duties is at present so great that it is next to impossible not to allow them to consume most of the principal's time.

*Second*, the great size of many of the schools makes the situation worse than it would otherwise be. In the larger schools the pressure upon the principal to confine himself to administration of business matters is greater than ever, while supervision by assistant principals is necessarily less effective than that by principals.

*Third*, so little authority is allowed to principals in regard to curriculum, time allotment for each study, and method of teaching, owing to the authoritative way in which these matters are presented in the printed curriculum and syllabi, that an able principal is even restrained from adapting the instruction to his particular pupils.

The principal is further hampered by the fact that there is a decided tendency to regard the District Superintendent, rather than the principal, as the really active head of each school, while the principal is even more plainly a subordinate to the supervisors of the special subjects, so far as those subjects are concerned.

Finally, the principals bear no relation to their superior officers that allows them to make recommendations to these officers to which the latter are under obligations to reply.

On account of these conditions the lack of authority among principals seriously interferes with their efficiency.

*Fourth*, the frequency with which teachers must be rated makes examinations of them unnecessarily prominent; the basis on which the rating is made is of such a character that it necessarily directs the attention of teachers to the details of instruction rather than to its purposes, and to the teachers themselves rather than to the children; and the share that the principal must take in this rating tends to unfit him for broad educational leadership.

*Fifth*. There is a serious lack of theory among the principals as to how the work of supervising instruction should be undertaken; the theory that seems most to prevail is that based on the idea that the degree of uniformity secured is one important measure of the excellence attained; and there is little study of the method of supervising, although it is the most important work of the principal.

Each one of these five facts—namely, the overemphasis of administrative duties; the great size of many of the schools; the want of authority among principals; the prominence of examinations of teachers, to-

gether with the poor basis on which they are conducted; and the lack of theory as to method of supervising—each one of these is a factor that seriously influences the quality of supervision by the principals, and each one of them tends to prevent excellence in this field. Thus all five tend strongly to verify the impression previously reached in regard to the character of supervision by principals, obtained by observation of principals engaged in supervising, and by consultation with both principals and teachers.

Attention may well be called, again, to the fact that there are numerous exceptions to almost every one of these general statements. All that has been attempted has been to discover what ideas and practices most generally prevail, and to set them forth. There is a considerable number of principals in the city who are either not oppressed by these obstacles, or to whom, at least, they are not insurmountable, and they are performing the work of supervision in a very effective manner. But to overcome or ignore these restraints involves personal risk on their part, and requires an extra degree of ability, independence, and energy. The majority of principals are not seriously to blame if they fail to show these qualities. It is the duty of the higher school authorities to establish conditions highly *favorable* to proper supervision by principals, rather than those positively inimical to it.

### **E. Recommendations in Regard to Supervision by Principals**

In view of the foregoing considerations we make the following recommendations:

#### **1. On Classification of Principals' Duties**

The manifold duties of principals should be classified into three groups: (1) those that are purely clerical; (2) those that concern instruction more or less, but that largely concern routine, and, therefore, require little special ability; (3) those that require the technical ability of the educational specialist. Such classification having been effected, the simpler tasks in (1) and (2) should be assigned to minor officials in such a way that the principal has very little responsibility in regard to them. Then a very definite understanding should be reached that the principal shall identify himself primarily with the duties listed in Group (3).

#### **2. On Size of Schools**

The present tendency to increase the size of schools—there are now nearly one hundred teachers in some of the elementary schools—should be positively checked, and a desirable size should be agreed upon for the future, possibly not exceeding approximately thirty teachers. Also,

some of the large schools should—when the arrangement of the building permits—be divided into separate schools entirely.

### **3. On Amount of Authority to Be Granted to Principals**

The principal should be made the real, not merely the nominal, head of his school. To this end he and his teachers should take the initiative in making the curriculum in all subjects for their school. The syllabi should discuss methods in a way that will in no sense tend to tie his hands, or those of his teachers.

Also, a definite avenue of approach to his superior officers should be established, so that recommendations that express the consensus of opinion of principals and that are forwarded to these officers shall command careful consideration and full reply within reasonable time.

### **4. On Frequency and Basis of Tests of Teachers**

The frequency with which teachers are now rated should be reduced, and the basis on which the rating takes place should be radically modified.

### **5. On Development of a Theory of Supervision by Principals**

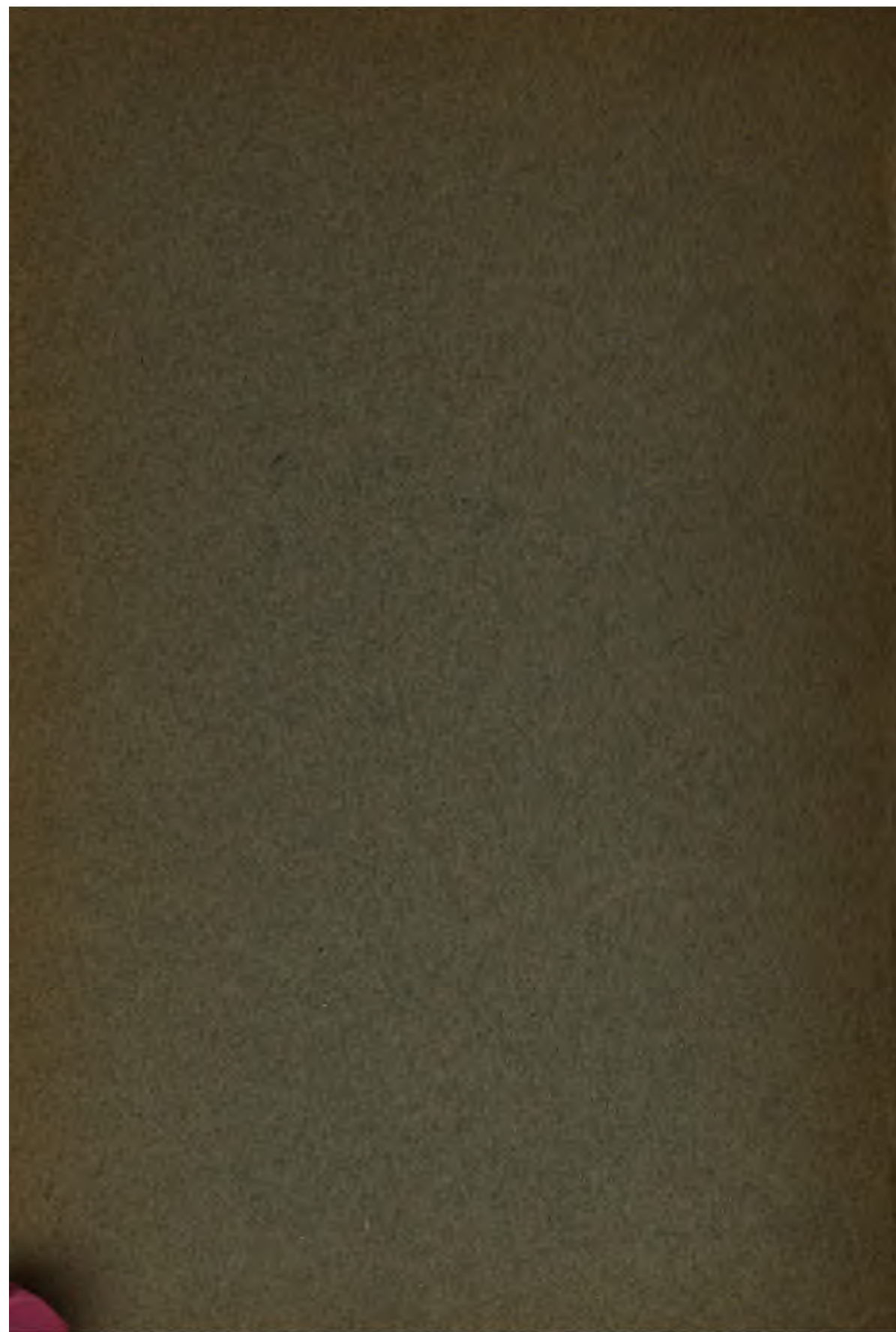
The idea should be established that a school is good to the extent that its individual conditions are met, not to the extent that its plan of procedure duplicates that of other schools. With this idea established, principals should be held responsible for developing a theory of supervision, and its content should be revealed (a) to teachers, by the effective manner in which they are aided through its means; and (b) to the superior school officials, by reports on this subject.











II-1d  
Educ 1432.71.  
\*(Borough)

# INTERIM REPORT

## Committee on School Inquiry Board of Estimate and Apportionment

*Embracing*

1. Letter of Transmittal
2. Excerpt from "The Report as a Whole"  
By PROFESSOR PAUL H. HANUS
3. Report on the Curtis Tests in Arithmetic  
By STUART COURTIS

*Committee on School Inquiry*

JOHN PURROY MITCHEL

*President of the Board of Aldermen*

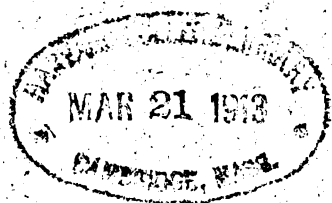
WILLIAM A. PRENDERGAST

*Comptroller*

CYRUS C. MILLER

*President of the Borough of the Bronx*

CITY OF NEW YORK  
1911-1912



Prof. P. H. Hanus,  
Cambridge

FEBRUARY 19, 1913.

*To the Honorable, The Board of Estimate and Apportionment:*

GENTLEMEN:—The Committee on School Inquiry herewith transmits to your Board a section of the report upon the educational aspects of the school inquiry, being a monograph by Mr. Stuart A. Courtis, Head of Department of Science and Mathematics, Detroit Home and Day School, Detroit, Michigan, upon "The Courtis Tests in Arithmetic." Prefixed thereto is printed the section of "The Report as a Whole," prepared by Prof. Hanus, which deals with the subject matter of the accompanying monograph.

The monograph transmitted was first sent to the printer by Prof. Hanus in the form of manuscript on July 1, 1912, was transmitted by the printer to the writer and Prof. Hanus for revision on July 19 and 22, 1912. Since that time, the monograph has been undergoing revision by the writer and by Prof. Hanus and correction by the printer, and was received by your Committee, with the final approval of the writer and of Prof. Hanus, on January 11, 1913.

Respectfully submitted,

JOHN PURROY MITCHEL,  
*President Board of Aldermen.*

WM. A. PRENDERGAST,  
*Comptroller.*

CYRUS C. MILLER,  
*President Borough of The Bronx.*  
Committee on School Inquiry.



EXCERPT FROM

## **"THE REPORT AS A WHOLE"**

BY

PROFESSOR PAUL H. HANUS

### **(3) The Courtis Tests in Arithmetic**

Education is seeking a scientific basis. We are aiming to substitute established educational facts and verified conclusions based on them for individual opinion, no matter how authoritative. The foundation of all science is accurate measurements of the facts with which it deals. It will be some time, however, before we have such a firm basis for the science of education—for educational theory and practice. Meanwhile a number of promising beginnings have been made, and some of them have passed beyond the stage of beginnings. Among these are the Courtis Tests in Arithmetic. These tests represent the most successful attempt at scientific measurement in education known to me. Moreover, they have been developed by Mr. Courtis through several years of investigation over a wide area in this country and abroad.

It seemed important that we should apply this illustration of the scientific method of investigating and appraising educational results in at least one important field of work. I therefore gladly availed myself of the opportunity to secure Mr. Courtis himself to direct the application of his tests in New York City.<sup>1</sup> I wished to show how such or similar studies should be incorporated in the regular work of the school system in the interest of the education of the children, the teachers, supervising officers, and the general public. For they point the way to real progress in education. Such studies in every field of work are imperatively needed. They would show how unsafe complacent or at least tacit acquiescence in our present generally unsatisfactory basis—mere educational authority based on general opinion and personal experience—is. And they would furnish a guide to practice, the validity of which neither teacher nor layman could disregard. It is because the Courtis tests show this for fundamentals in arithmetic—one of the most important studies—and at the same time show what the present arith-

<sup>1</sup> Mr. Courtis received no salary. He was satisfied with his expenses.

## EDUCATIONAL INVESTIGATION

metrical achievement of the schools in those fundamentals is, and because they furnish important suggestions for future procedure in teaching and supervision, that we have used them.

The central idea of the Courtis tests is that *the same test* is applied *under the same conditions* in every grade; and that growth in ability in the fundamentals tested is shown in increased accuracy and speed in the work done. The tests were applied to 33,350 children—approximately one-tenth of the pupils in the grades 4A to 8B in schools selected at random, but widely distributed throughout the city. As a whole, the results show great inefficiency in both accuracy and speed in computation, and in simple reasoning; and they show, further, that children of *every level of ability* (the average score for a grade) *are found in every grade*; and that *differences between individuals greatly exceeded differences between grades*. Such results, it should be noted, are not peculiar to New York City; they have been found wherever the Courtis tests have been applied. Compared with children in other cities, New York City children are slightly better in speed, but correspondingly worse in accuracy, and very poor in reasoning.

These conditions are not due to lack of effort on the part of the teachers, but to the neglect of a basic factor in education—adaptation of the work to individual differences. We accordingly recommend that present methods be so modified as to base the work in fundamentals, at least, on the measured individual needs of the pupils; that standard tests and standard achievements be adopted to increase definiteness of aims in teaching the fundamentals of arithmetic; that investigations be undertaken to determine the effect of all the factors that determine ability, and condition mental growth; that the effectiveness of various methods of work be tested by certain scientifically controlled experiments; and, finally, that the Bureau of Investigation and Appraisal recommended below organize and control these investigations and experiments.



REPORT ON  
EDUCATIONAL ASPECTS OF THE  
PUBLIC SCHOOL SYSTEM

OF THE CITY OF NEW YORK

TO THE

COMMITTEE ON SCHOOL INQUIRY  
OF THE BOARD OF ESTIMATE  
AND APPORTIONMENT

PART II

*Subdivision I*

*Elementary Schools*

SECTION D.—THE COURTIS TESTS IN ARITHMETIC

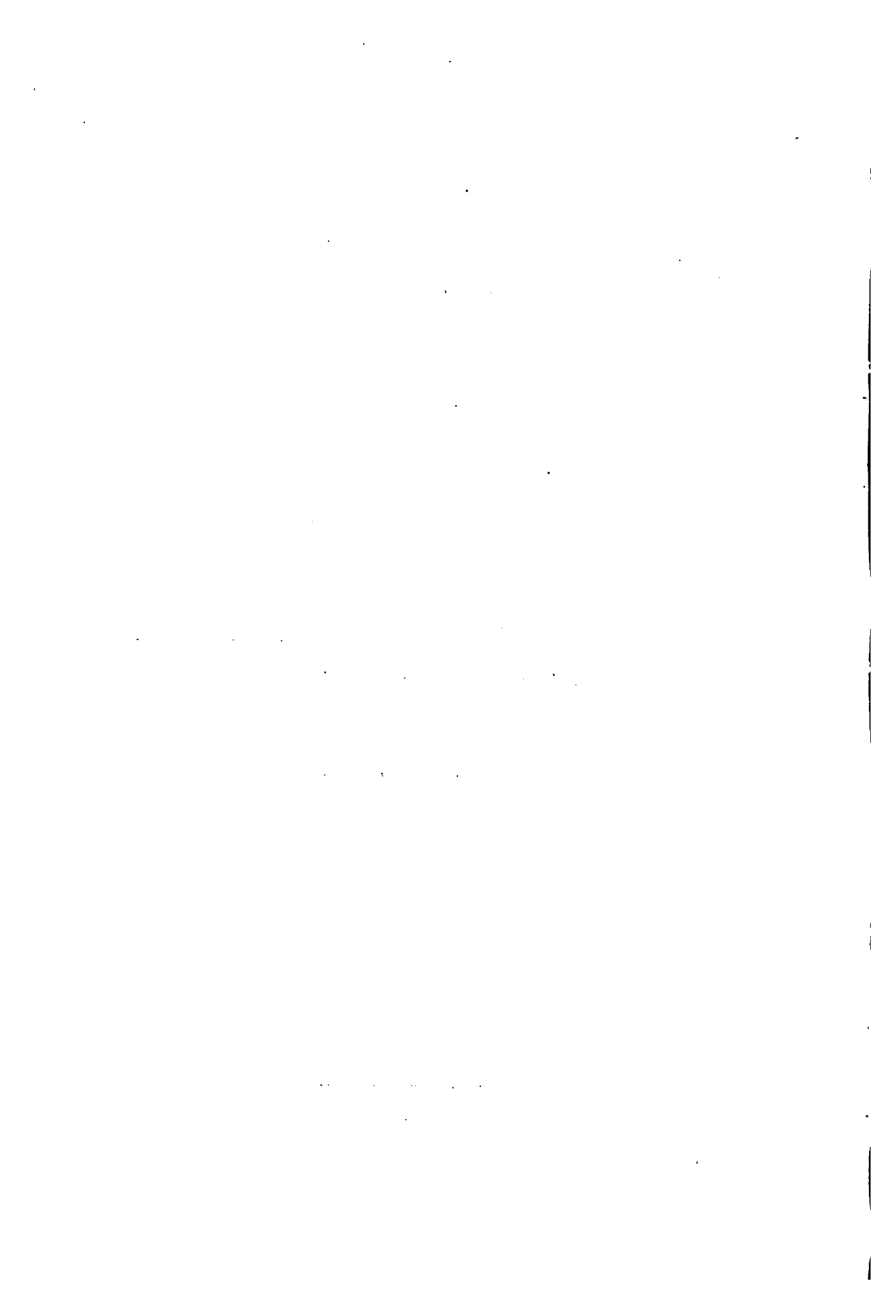
BY

STUART A. COURTIS

Head of the Department of Science and Mathematics, Detroit Home and Day School,  
Detroit, Mich.; Originator of the Courtis Tests

CITY OF NEW YORK

1911-1912



Detroit, Mich., July 15th, 1912.

Professor PAUL H. HANUS,

In Charge of Educational Aspects of School Inquiry, New York City.

DEAR SIR:

I beg to report that, pursuant to your instructions, I have applied the Courtis Standard Tests in Arithmetic to a selected list of New York public schools for the purpose of determining—

1. The standard of achievement in the fundamental operations with whole numbers, and in simple reasoning, in arithmetic.
2. The relative achievements of certain of the schools tested, as measured by this standard.
3. The relative achievements of grades and individuals, as measured by this standard, so far as is necessary to indicate to teachers, principals, and superintendents how such knowledge could be used to make their work more effective.
4. The relative achievements of the New York schools as a whole, as measured by standard scores derived from tests in other cities.

The results from the testing work, and the inferences to be drawn therefrom, will be found in the accompanying report. From the very outset, however, it must be recognized that comparative testing is a distinct type of work in itself, differentiated in many important characteristics from the ordinary examination. In particular, the Courtis tests, having been designed for a specific purpose, are most readily understood when that purpose is kept in mind. Accordingly, it has seemed wise to preface the more definite results of the investigation with a very brief statement of the historical development of comparative testing, and of the peculiar circumstances that led to the evolution of the Courtis tests. Further, in view of the surprising character of the results and of their importance to education generally, it has seemed best to give in minute detail the various features, both of the tests themselves and of the procedure of examination, scoring, and tabulation, that a full understanding of all points may be had by those whose interest or inclinations may lead them to a close study of the same. For the general reader, however, the results and conclusions alone are important. Accordingly, in the outline at the beginning of the report there will be found a summary of the characteristics of the various sections that will enable each individual to turn at once to those portions of peculiar interest to him.

Respectfully submitted,

S. A. COURTIS.



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# COURTIS STANDARD TESTS IN ARITHMETIC

## REPORT OF MEASUREMENTS OF ACHIEVEMENTS AND STANDARDS OF THE NEW YORK CITY PUBLIC SCHOOLS

### Section I

#### Historical Development of Comparative Testing

##### Work of Rice

Of the many investigators of conditions in arithmetic, the name of Dr. J. M. Rice<sup>1</sup> will always receive especial mention. He, more than any other, seems first to have recognized the possibilities of comparative test given to many classes and schools under identical conditions. His results from six thousand children in eighteen schools, representing seven cities, have had a wide influence both upon educational thinking and upon the methods of other investigators.

##### Work of Stone

The evident defects of Rice's tests and methods, however, led Dr. C. W. Stone<sup>2</sup> to attempt the standardization of a measure for sixth-grade work. Carefully prepared tests were given under uniform conditions to the pupils of twenty-six school systems in seven states. A full account of tests, methods, and tabulations was published, making it possible for the teacher of any sixth-grade class to compare his work with that of the schools tested by giving the same tests under the same conditions, and following the same plan of scoring.

#### Evolution of the Courtis System

The idea of a standard measure of achievement for the work of even a single grade met with instant response from teachers generally. The writer, having charge of the work in arithmetic in the Liggett School, formerly the Detroit Home and Day School, a private school for girls,

<sup>1</sup> J. M. RICE ..... '02  
Educational Research: A Test in Arithmetic, The Forum, Vol. 34, pp. 281-297; Causes of Success and Failure in Arithmetic, pp. 437-452.

<sup>2</sup> C. W. STONE ..... '08  
Arithmetical Abilities and Some Factors Determining Them, Columbia University Contributions to Education, Teachers' College Series No. 19.

was among those who took up the work, but he extended the idea by measuring, by the same standard, every grade in the school from the third to the thirteenth. The resulting curves for the development of the several abilities through the school, together with the wide individual variation found in every grade, led at once to the idea of control of individual development through standard scores and standard growths for every grade. It was evident, however, that the complexity of the Stone tests prevented a satisfactory interpretation of the meaning of the results. As Stone himself concludes, ability in arithmetic is evidently not a single ability, but a complex of many abilities. Accordingly, the experimental work of the school was limited by Courtis to work in the fundamental operations with whole numbers, and a series of tests was gradually evolved to measure those elements of such work that need to be controlled in the classroom. It was soon found, however, that the number of children in the school was too small to permit the selection of standard scores on anything like an intelligent basis. The next step, therefore, was to print the tests in quantity with complete instructions for every phase of the work, and to secure the co-operation of many schools and teachers in giving and scoring the papers under identical conditions. The measures of approximately ten thousand children from some seventy schools in ten states were secured in this way, and standard scores for each test and grade were selected and published.<sup>1</sup> These are the standard scores referred to below.

It will be seen, therefore, that the genesis of the testing work has been as follows: To Rice is due the credit for the fundamental idea of comparison of schools by the results of tests given to all under uniform conditions; Stone emphasized standard achievement and scientific care in the preparation of the tests and in control of conditions; Courtis extended the idea of standards and adapted both tests and testing to the measurement and improvement of the efficiency of classroom work.

## Section II

### Characteristic Features of the Courtis Standard Tests

#### Fundamental Characteristics

The fundamental idea in comparative testing is the use of a common measure in determining the relative achievements of different classes; and the more nearly the measurements can be expressed in terms of units along an absolute scale whose zero point is known, the more perfect is the valuation of the results. In the Courtis system these fundamental ideas have determined four of its five distinctive features, namely, (1) uniform tests composed of equal units; (2) of sufficient length to keep all busy during the whole of the time allowed; (3) tests which

<sup>1</sup> The Elementary School Teacher, Vol. XII, No. 3, November, 1911.

are given under identical conditions; (4) to successive grades. The fifth characteristic was determined by the purpose for which the tests were to be used—the improvement of classroom work in the fundamentals of arithmetic. It is best described by saying that the series of tests as a whole measure, not independent, but closely related, abilities, so that the results reveal not only the development of the specific elements measured, but how far the organization of these elements into the desired complexes takes place in the school. Each of these characteristics will be discussed in detail.

### Selection of Abilities to Be Tested

Before proceeding to the detailed discussion of the various tests, however, it will be necessary to sketch briefly the underlying plan of the series; for both the number of tests and the abilities tested were determined by the fundamental purpose of the work—the improvement of the efficiency of the teaching effort.

As has already been mentioned, the results from the Stone tests were difficult to interpret. When a child failed in a problem involving fractions by making a mistake in multiplication, the reasons for the failure may have been (1) lack of knowledge of the multiplication tables, or simply careless use of the multiplication tables caused (2) by a struggle with fractions, or (3) by the reasoning involved. While, whatever the reason, the mistake was a mistake in multiplication, the corrective work to be done in each of the three cases mentioned would have been very different.

It seemed wise, therefore, to determine first of all to what degree the fundamental processes with whole numbers had been mastered in the various grades. But appropriate tests soon disclosed the fact that nothing approaching mastery existed in any grade—in every grade there were great individual differences in the amount of work finished in a given time, and much of the work was grossly inaccurate. The logical procedure seemed to be to attempt to bring these undesirable conditions under control, and to insure to every child at least a minimum speed and accuracy in simple computations with whole numbers.

An analysis of the mistakes made by the children, however, emphasized the conclusion reached by Stone that such work is a complex of many abilities. In a long-division example, for instance, one child made repeated mistakes in subtraction, another in multiplication, while a third failed to “carry” accurately. Denoting the complex ability to work with speed and accuracy in the four processes as ability in “Fundamentals,” the attempt was then made to analyze this ability into its component elements. The analysis, however, was made on a practical, not on a psychological basis. For instance, Thorndike<sup>1</sup> states that there are at least nine psychological activities in simple column addition. Many of these

<sup>1</sup> The School Review, May, 1912, p. 290.

abilities, however, are beyond the teacher's control. This is not true of (1-4) knowledge of the fundamental combinations and processes in the four operations, (5) rate at which figures are written, (6) ability to borrow and carry, (7) ability to copy correctly the figures of a problem, (8) ability to follow instructions. Accordingly, provision is made in the Courtis tests for the measurement of each of these eight abilities, as well as for the measurement of ability in fundamentals.

A further question remained to be settled. Granted that a child can work abstract examples with desirable speed and accuracy, will the ability stand up under the strains imposed by its use in problems involving reasoning activities as well? It was soon apparent, however, that "reasoning" in arithmetic is also a very complex activity; that before any real measurement of reasoning ability could be attempted the influence of many factors would have to be evaluated experimentally. The two most evident factors were ability to comprehend from a printed problem the situation presented, and the ability to determine the proper operation to be used in the given situation.

Accordingly, two reasoning tests were constructed and are described below. It is to be particularly noted, however, that, although these tests are called reasoning tests, it is not claimed in any way that they are more than crude measures of certain limited phases of the reasoning power of children in arithmetical work. The purpose of the tests is to supply information needed in the interpretation of the facts in regard to the development and use of the ability in Fundamentals, and they should be criticized from no other point of view.

### General Plan of Series

The resulting series of tests, then, have for their central purpose the measurement of the component elements of ability in Fundamentals and of the degree of organization of such component elements into the resulting complexes. The tests are eight in number and are known as—

Test No. 1.	Speed Test—Addition	} Combinations 0—9.
" " 2.	" " —Subtraction	
" " 3.	" " —Multiplication	
" " 4.	" " —Division	
" " 5.	" " —Copying Figures. (Rate of motor activity.)	
" " 6.	" " —Reasoning. (Judgment of operation to be used in simple one-step problems.)	} Abstract examples in the four operations—computation.)
" " 7.	" " —Fundamentals. (Abstract examples in the four operations—computation.)	
" " 8.	" " —Reasoning. (Two-step problems involving computations.)	

Each of these is illustrated and discussed below. The reader will do well to get the general scheme clearly in mind in order to follow easily the discussion of results. He should note that tests 1-6 are the

elemental abilities, tests 7 and 8 the complexes; that test No. 7 involves the use of the abilities tested in Nos. 1-5, and that No. 8 involves all the abilities measured in the previous tests.

The use of the term "Speed" in connection with the elemental tests needs explanation. The abilities themselves are so very elemental that if sufficient time were given practically every child above the fourth grade (except defectives) would be able to complete the whole of each of these tests, and to do the work correctly. Moreover, the attitudes of the children toward the work would be very different in the different grades by reason of changes in the maturity of the children. But by putting the work on a speed basis a situation is created that is much more nearly uniform from individual to individual, and from grade to grade—straight-ahead work at one's top speed—and the results disclose at once where weaknesses exist; for the abilities break down at their weakest points. Speed, then, is not insisted on for the sake of speed, but because speed best ministers to uniformity of conditions, and to exposure of weaknesses.

#### **Details of Tests Nos. 1-4**

Taking up now the discussion of details, in figures Nos. 1, 2, 3, and 4 will be found illustrations of the first four speed tests. As these differ merely in the operation to be used, the characteristics of all four can be discussed at one time. These are (1) completeness; and (2) uniformity.

##### **1. Completeness**

Each test contains in its first five lines the 100 fundamental combinations for its operation (except division). The sixth line is a repeat in order that, when necessary, the entire hundred combinations may be finished without having the work influenced by the knowledge that the end has been reached. It will be noted that the expression "one hundred fundamental combinations" is used in place of the conventional "forty-five fundamental combinations" and their reverses. Analysis of the mistakes of many individuals as well as direct experiments in the laboratory have proved conclusively that it is possible for an individual to know the result of three times four without knowing that of four times three; of four plus three, and not that of three plus four. Emphasis on the number of combinations, as 45, tends to restrict the teaching to the direct combinations only. Careful time studies in the laboratory make it certain that each individual's reaction toward each combination is highly specialized. Consequently, it may become important to test an individual's response to every one of the hundred combinations in use in order that, where peculiarities exist, they may be detected and special remedial work undertaken to remove difficulties.

Many educators declare, also, that the zero combinations should not



"Measure the efficiency of the entire school, not the individual ability of the few"

### ARITHMETIC—Test No. 1. Speed Test—Addition

Name \_\_\_\_\_ School \_\_\_\_\_ Grade \_\_\_\_\_

SCORE	
No. attempted	_____
No. right	_____

Write on this paper, in the space between the lines, the answers to as many of these addition examples as possible in the time allowed.

$\begin{array}{r} 8\ 9\ 7\ 8\ 2 \\ 1\ 9\ 6\ 0\ 5 \\ \hline \end{array}$	$\begin{array}{r} 1\ 3\ 6\ 0\ 3 \\ 5\ 8\ 9\ 7\ 2 \\ \hline \end{array}$	$\begin{array}{r} 1\ 7\ 9\ 3\ 2 \\ 3\ 7\ 6\ 0\ 4 \\ \hline \end{array}$	$\begin{array}{r} 1\ 6\ 9\ 0\ 4 \\ 2\ 6\ 5\ 1\ 2 \\ \hline \end{array}$
$\begin{array}{r} 5\ 8\ 6\ 9\ 4 \\ 1\ 3\ 5\ 0\ 3 \\ \hline \end{array}$	$\begin{array}{r} 1\ 2\ 5\ 6\ 7 \\ 4\ 9\ 8\ 0\ 2 \\ \hline \end{array}$	$\begin{array}{r} 3\ 4\ 7\ 0\ 3 \\ 1\ 6\ 9\ 8\ 5 \\ \hline \end{array}$	$\begin{array}{r} 1\ 4\ 8\ 0\ 2 \\ 6\ 7\ 9\ 5\ 7 \\ \hline \end{array}$
$\begin{array}{r} 1\ 8\ 6\ 0\ 5 \\ 9\ 4\ 7\ 2\ 4 \\ \hline \end{array}$	$\begin{array}{r} 4\ 8\ 9\ 5\ 3 \\ 1\ 8\ 7\ 0\ 6 \\ \hline \end{array}$	$\begin{array}{r} 1\ 3\ 8\ 2\ 3 \\ 7\ 9\ 5\ 0\ 7 \\ \hline \end{array}$	$\begin{array}{r} 2\ 9\ 7\ 4\ 5 \\ 2\ 3\ 8\ 0\ 2 \\ \hline \end{array}$
$\begin{array}{r} 3\ 7\ 9\ 0\ 4 \\ 3\ 4\ 8\ 6\ 5 \\ \hline \end{array}$	$\begin{array}{r} 2\ 4\ 5\ 1\ 6 \\ 1\ 8\ 9\ 0\ 2 \\ \hline \end{array}$	$\begin{array}{r} 9\ 2\ 5\ 0\ 6 \\ 1\ 8\ 7\ 4\ 3 \\ \hline \end{array}$	$\begin{array}{r} 7\ 4\ 8\ 0\ 3 \\ 1\ 9\ 6\ 0\ 4 \\ \hline \end{array}$
$\begin{array}{r} 6\ 9\ 8\ 1\ 2 \\ 1\ 4\ 7\ 1\ 3 \\ \hline \end{array}$	$\begin{array}{r} 1\ 6\ 7\ 0\ 2 \\ 8\ 4\ 5\ 3\ 6 \\ \hline \end{array}$	$\begin{array}{r} 5\ 9\ 6\ 7\ 5 \\ 5\ 2\ 8\ 0\ 3 \\ \hline \end{array}$	$\begin{array}{r} 4\ 8\ 5\ 0\ 7 \\ 4\ 2\ 6\ 9\ 3 \\ \hline \end{array}$
$\begin{array}{r} 1\ 4\ 9\ 0\ 4 \\ 6\ 7\ 5\ 1\ 2 \\ \hline \end{array}$	$\begin{array}{r} 1\ 2\ 6\ 0\ 3 \\ 6\ 7\ 9\ 7\ 2 \\ \hline \end{array}$	$\begin{array}{r} 8\ 9\ 7\ 8\ 5 \\ 1\ 9\ 6\ 0\ 2 \\ \hline \end{array}$	$\begin{array}{r} 1\ 7\ 9\ 3\ 2 \\ 3\ 7\ 6\ 0\ 4 \\ \hline \end{array}$

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Fig. I



"Measure the efficiency of the entire school, not the individual ability of the few"

### ARITHMETIC—Test No. 2. Speed Test—Subtraction

Name \_\_\_\_\_ School \_\_\_\_\_ Grade \_\_\_\_\_

SCORE	
No. attempted	_____
No. right	_____

Write on this paper, in the space between the lines, the answers to as many of these subtraction examples as possible in the time allowed.

$\begin{array}{r} 6\ 11\ 15\ 10\ 12 \\ 0\ 7\ 8\ 9\ 4 \\ \hline \end{array}$	$\begin{array}{r} 8\ 11\ 12\ 5\ 10 \\ 0\ 9\ 7\ 1\ 2 \\ \hline \end{array}$	$\begin{array}{r} 1\ 9\ 13\ 4\ 12 \\ 0\ 7\ 8\ 3\ 6 \\ \hline \end{array}$	$\begin{array}{r} 9\ 7\ 11\ 8\ 12 \\ 9\ 3\ 6\ 1\ 3 \\ \hline \end{array}$
$\begin{array}{r} 5\ 8\ 17\ 6\ 11 \\ 5\ 6\ 9\ 4\ 8 \\ \hline \end{array}$	$\begin{array}{r} 4\ 10\ 13\ 10\ 9 \\ 4\ 7\ 5\ 1\ 4 \\ \hline \end{array}$	$\begin{array}{r} 1\ 6\ 15\ 4\ 8 \\ 1\ 3\ 9\ 2\ 3 \\ \hline \end{array}$	$\begin{array}{r} 2\ 7\ 13\ 3\ 10 \\ 1\ 5\ 7\ 2\ 5 \\ \hline \end{array}$
$\begin{array}{r} 9\ 7\ 14\ 5\ 11 \\ 0\ 2\ 8\ 4\ 2 \\ \hline \end{array}$	$\begin{array}{r} 7\ 8\ 16\ 9\ 11 \\ 0\ 5\ 7\ 1\ 4 \\ \hline \end{array}$	$\begin{array}{r} 5\ 12\ 15\ 5\ 16 \\ 0\ 9\ 6\ 3\ 8 \\ \hline \end{array}$	$\begin{array}{r} 4\ 9\ 16\ 7\ 11 \\ 0\ 6\ 9\ 1\ 3 \\ \hline \end{array}$
$\begin{array}{r} 6\ 7\ 17\ 6\ 9 \\ 6\ 4\ 8\ 1\ 2 \\ \hline \end{array}$	$\begin{array}{r} 2\ 10\ 11\ 9\ 14 \\ 0\ 8\ 5\ 8\ 7 \\ \hline \end{array}$	$\begin{array}{r} 8\ 13\ 12\ 8\ 13 \\ 8\ 9\ 5\ 7\ 4 \\ \hline \end{array}$	$\begin{array}{r} 2\ 12\ 15\ 3\ 10 \\ 2\ 8\ 7\ 1\ 3 \\ \hline \end{array}$
$\begin{array}{r} 3\ 8\ 14\ 6\ 10 \\ 0\ 4\ 9\ 5\ 4 \\ \hline \end{array}$	$\begin{array}{r} 7\ 6\ 13\ 10\ 9 \\ 7\ 2\ 8\ 8\ 3 \\ \hline \end{array}$	$\begin{array}{r} 3\ 9\ 14\ 4\ 18 \\ 3\ 5\ 6\ 1\ 9 \\ \hline \end{array}$	$\begin{array}{r} 0\ 5\ 14\ 7\ 8 \\ 0\ 2\ 5\ 6\ 2 \\ \hline \end{array}$
$\begin{array}{r} 1\ 9\ 13\ 4\ 12 \\ 0\ 7\ 8\ 3\ 6 \\ \hline \end{array}$	$\begin{array}{r} 6\ 11\ 15\ 10\ 12 \\ 0\ 7\ 8\ 9\ 4 \\ \hline \end{array}$	$\begin{array}{r} 9\ 7\ 11\ 8\ 12 \\ 9\ 3\ 6\ 1\ 3 \\ \hline \end{array}$	$\begin{array}{r} 8\ 11\ 12\ 5\ 10 \\ 0\ 9\ 7\ 1\ 2 \\ \hline \end{array}$

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Fig. II



"Measure the efficiency of the entire school, not the individual ability of the few"

### ARITHMETIC—Test No. 3. Speed Test—Multiplication

Name \_\_\_\_\_ School \_\_\_\_\_ Grade \_\_\_\_\_

Write on this paper, in the space between the lines, the answers to as many of these multiplication examples as possible in the time allowed.

$\begin{array}{r} 34905 \\ 27826 \end{array}$	$\begin{array}{r} 42749 \\ 19605 \end{array}$	$\begin{array}{r} 95476 \\ 12805 \end{array}$	$\begin{array}{r} 23907 \\ 13654 \end{array}$
$\begin{array}{r} 12818 \\ 95713 \end{array}$	$\begin{array}{r} 12708 \\ 68763 \end{array}$	$\begin{array}{r} 25607 \\ 35983 \end{array}$	$\begin{array}{r} 82754 \\ 16906 \end{array}$
$\begin{array}{r} 32608 \\ 14715 \end{array}$	$\begin{array}{r} 13765 \\ 25809 \end{array}$	$\begin{array}{r} 43986 \\ 26704 \end{array}$	$\begin{array}{r} 62895 \\ 17407 \end{array}$
$\begin{array}{r} 73924 \\ 18903 \end{array}$	$\begin{array}{r} 14804 \\ 54935 \end{array}$	$\begin{array}{r} 16809 \\ 42873 \end{array}$	$\begin{array}{r} 13503 \\ 74509 \end{array}$
$\begin{array}{r} 16917 \\ 62402 \end{array}$	$\begin{array}{r} 25437 \\ 28905 \end{array}$	$\begin{array}{r} 19803 \\ 32647 \end{array}$	$\begin{array}{r} 58605 \\ 12394 \end{array}$
$\begin{array}{r} 42749 \\ 19605 \end{array}$	$\begin{array}{r} 34905 \\ 27826 \end{array}$	$\begin{array}{r} 23907 \\ 13654 \end{array}$	$\begin{array}{r} 95476 \\ 12805 \end{array}$

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Fig. III



"Measure the efficiency of the entire school, not the individual ability of the few"

### ARITHMETIC—Test No. 4. Speed Test—Division

Name \_\_\_\_\_ School \_\_\_\_\_ Grade \_\_\_\_\_

Write on this paper, in the space between the lines, the answers to as many of these division examples as possible in time allowed.

$1\overline{)8530}$	$8\overline{)72}$	$1\overline{)936}$	$2\overline{)424}$	$7\overline{)63}$	$6\overline{)0832}$	$9\overline{)321}$	$6\overline{)48}$	$1\overline{)1510}$	$3\overline{)432}$	$6\overline{)36}$	$2\overline{)0728}$
$5\overline{)436}$	$9\overline{)54}$	$8\overline{)0412}$	$1\overline{)216}$	$8\overline{)48}$	$1\overline{)2927}$	$1\overline{)4535}$	$9\overline{)45}$	$2\overline{)2312}$	$8\overline{)428}$	$5\overline{)40}$	$2\overline{)8816}$
$5\overline{)0324}$	$9\overline{)63}$	$2\overline{)4824}$	$6\overline{)327}$	$8\overline{)64}$	$1\overline{)2416}$	$3\overline{)8420}$	$7\overline{)49}$	$1\overline{)328}$	$1\overline{)7210}$	$7\overline{)42}$	$1\overline{)1618}$
$4\overline{)4315}$	$9\overline{)81}$	$7\overline{)0612}$	$4\overline{)630}$	$8\overline{)56}$	$1\overline{)0714}$	$7\overline{)7218}$	$6\overline{)42}$	$3\overline{)0721}$	$5\overline{)8214}$	$8\overline{)40}$	$9\overline{)0515}$
$1\overline{)8736}$	$6\overline{)54}$	$1\overline{)3520}$	$1\overline{)2525}$	$7\overline{)56}$	$3\overline{)3918}$	$1\overline{)8318}$	$9\overline{)72}$	$4\overline{)0624}$	$1\overline{)4212}$	$5\overline{)45}$	$3\overline{)348}$
$9\overline{)2432}$	$6\overline{)36}$	$2\overline{)0728}$	$3\overline{)8424}$	$7\overline{)35}$	$6\overline{)0832}$	$1\overline{)8530}$	$8\overline{)72}$	$1\overline{)8936}$	$9\overline{)2321}$	$6\overline{)48}$	$1\overline{)1510}$

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Fig. IV

be included in such a test. This is, of course, a matter of opinion. The inclusion of such combinations in these tests, however, is not an arbitrary decision, but a deliberate judgment based upon the results of many tests and experiments. For instance, (1) it was found that in the papers from the Stone tests, where a cipher occurred in the multiplier, many mistakes were made in the failure to multiply by this figure correctly; (2) that in a multiplication speed test of forty-one mature individuals—graduate students, teachers, superintendents, etc.—at Columbia University, in the summer of 1910, eighteen of the group made 104 mistakes in the zero combinations; (3) that in classes in high-school algebra substitution involving the use of zero as a multiplier causes many mistakes; (4) that children taught the zero combinations in the regular way in the early grades have no difficulty with them, while classes which have never received this training not only make mistakes, but the mistakes persist if remedial training is attempted later than the seventh grade; finally (5) that, even when testing adults with sufficient control to write the answer correctly, time studies show the lengthening of the interval required to make the proper response to these combinations. For all these reasons, and for others which cannot be discussed here, the entire one hundred combinations are included in the tests.

A single exception is made in the case of the division speed test. Here the combinations—eight into zero, six into zero, etc.—are included, but the forms—zero into eight, etc.—are not. The answer in these cases requires the use of a symbol with which the children are not familiar, and the form itself is never met in elementary mathematics. They have been replaced by repetitions of the simpler combinations.

## 2. Uniformity

The distribution of the combinations within a test is not a chance one, but is based upon a regular plan. As shown in Table I, the one hundred combinations are grouped into five equal divisions differing in degree of difficulty. As previous tests had proved that to any one individual the actual difficulty of the various combinations was an individual peculiarity—that to one person seven times eight might present no particular difficulty, while three times two might present wellnigh insurmountable difficulties—the basis for estimation of degree of difficulty was taken as the effort that would be involved in working out the answer if it were not remembered. On this basis the five divisions, shown in Table I, were formed; one combination was chosen from each division, each group of five combinations in the test being thus the equal of any other group. In making up the groups, several other factors were taken into consideration, namely, the number and difficulty (since some figures take longer to write than others) of the figures that must be written in each line in filling in the answers, and the distributions of the various tables throughout the tests, so that the combinations of any one table might not occur too closely together.



Table I—Showing Subdivisions of the Combinations in Test 1

GROUP I—Very Easy....	0	0	0	0	0	0	0	0	0	0
	0	1	2	3	4	5	6	7	8	9
	1	2	3	4	5	6	7	8	9	1
	0	0	0	0	0	0	0	0	0	1
GROUP II—Easy .....	1	1	1	1	1	1	1	1	2	2
	2	3	4	5	6	7	8	9	1	2
	3	4	5	6	7	8	9	3	4	5
	1	1	1	1	1	1	1	1	3	4
GROUP III—Average ...	2	2	2	2	2	3	3	3	3	3
	3	4	5	6	7	2	4	5	6	7
	4	4	4	5	5	5	6	6	7	7
	2	3	5	2	3	4	2	3	2	3
GROUP IV—Hard .....	2	2	3	3	4	4	4	4	6	6
	8	9	8	9	6	7	8	9	4	6
	7	8	8	8	9	9	9	7	8	9
	4	2	3	4	2	3	4	7	8	9
GROUP V—Very Hard..	5	5	5	5	6	6	6	6	7	7
	6	7	8	9	5	7	8	9	5	6
	7	7	8	8	8	8	9	9	9	9
	8	9	5	6	7	9	5	6	7	8

In any such scheme, involving the interplay of several factors, compromise is inevitable, but the resulting tests—the end products of a long series of rearrangements—have proved remarkably uniform. In consequence, the scores in answers per minute may be considered as units along an absolute scale without serious error. The zero point of this scale is unknown in the sense that there is a great difference in the ability of two children, one of which has absolutely no ability to write answers to any combination, while the other is just not able to write one answer in the time allowed. But for practical school measurements both children actually have, at the time tested, zero ability in the trait being tested. Accepting this definition of the zero point, a score<sup>1</sup> of forty answers per minute will mean twice the ability that is denoted by a score of twenty answers per minute—just as truly as six feet denotes twice three feet. In measurements of change, also, from the fact that children's scores respond readily to practice it seems probable that the change from twenty answers per minute to twenty-five answers per minute corresponds to the change from forty-five answers per minute to fifty

<sup>1</sup> Throughout this report the word "Score" will be used to denote for any test the number of examples for which answers have been found and recorded in the time allowed. For tests Nos. 6, 7 and 8, the score may be either the total number of answers written regardless of whether they are right or wrong (attempts), or the number of correct answers written (rights).

answers per minute. That this would not be true at the extremes of the scale is conceded, but the child that is able to write answers at all usually has a score of four to eight answers, while no sign of an upper limit of ability has been found in any of the experimental work so far undertaken. For ordinary school work, therefore, and for the purposes of this investigation, the scores in these tests are regarded as measures along an absolute scale whose zero point is known. Similar reasoning holds for each of the other tests, and the point need not be discussed again.

### Speed Test No. 5; Copying Figures—Illustrated in Fig. V



*"Measure the efficiency of the entire school, not the individual ability of the few"*

SCORE	
No. attempted	_____
No. right	_____

#### ARITHMETIC—Test No. 5. Speed Test—Copying Figures

Name \_\_\_\_\_ School \_\_\_\_\_ Grade \_\_\_\_\_

Copy on this paper, in the space between the lines, as many of the printed figures as possible in the time allowed.  
Write as rapidly as possible, but form the figures as carefully as in working examples.

2 4 9 6 7   4 2 9 7 6   6 2 9 4 7   7 2 9 6 4   2 4 9 7 6   4 2 9 6 7   6 2 9 7 4   7 2 9 4 6

2 6 9 7 4   4 6 9 2 7   6 4 9 7 2   7 4 9 2 6   2 6 9 4 7   4 6 9 7 2   6 4 9 2 7   7 4 9 6 2

2 7 9 4 6   4 7 9 6 2   6 7 9 2 4   7 6 9 4 2   2 7 9 6 4   4 7 9 2 6   6 7 9 4 2   7 6 9 2 4

2 4 9 6 7   4 2 9 7 6   6 2 9 4 7   7 2 9 6 4   2 4 9 7 6   4 2 9 6 7   6 2 9 7 4   7 2 9 4 6

2 6 9 7 4   4 6 9 2 7   6 4 9 7 2   7 4 9 2 6   2 6 9 4 7   4 6 9 7 2   6 4 9 2 7   7 4 9 6 2

2 4 9 6 7   4 2 9 7 6   6 2 9 4 7   7 2 9 6 4   2 4 9 7 6   4 2 9 6 7   6 2 9 7 4   7 2 9 4 6

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Fig. V

The purpose of this test is to determine the rate of motor activity, not how well or how poorly children can copy figures. The importance of this knowledge is shown by the following: Two girls in the same class obtain scores in, say, the subtraction test which are just half the value of the class average. In a test of their rates of copying figures, one equals the average rate of the class, but the second again makes a score half the class average. It is evident that the first girl failed in the subtraction test because she did not know the combinations. The second, however, even if she knew her combinations perfectly, could not have equaled the average score of the class because she was handicapped by her inability to make her fingers move at the average rate. For corrective work, the difference is fundamental.

It will be noted that the work of this test calls for a minimum of mental activity. Practically nothing is demanded except perception of the figures to be written, and the proper motor responses. As, however, the adult score is from 110-130 figures per minute, close and sustained attention must be given to the work. The results measure quite accurately the relative native ability of the children. Other things being equal, that individual who is able to expend energy at the greater rate has the greater ability. Also, in many cases, the results are an indication of the stage of development reached by the children, particularly in the lower grades. Scores much below, or in excess of, the grade average are often indications of retarded or advanced physical development.

Uniformity in this test was secured by repeated use of the same figures. Many experimental determinations of relative difficulty, based upon the time required to write the different figures, were made. For instance, it was found that, on the average, a person can write three figure 1's while he is writing one figure 5. The figures 2, 4, 6, 7 were selected as being the four of nearest average value; the 9 as a more difficult figure. In the different groups in the test, the 9 is always placed as the central figure of the five, in the belief that a rhythm might be established which would tend toward uniformity. About the 9 the other figures are grouped in every possible variation. The test as a whole has yielded consistent and satisfactory results.

#### Details of Test No. 6

In Fig. VI is shown Test No. 6, Speed Reasoning. It will be noted from the instructions that in this test no computations whatever are necessary. The abilities involved are mainly two: (1) Ability to read English understandingly, and (2) ability to decide upon the operation to be used in a given situation. It is extremely probable that a separate test for the first ability would prove of very great value. The child that is handicapped by his inability to read English comprehendingly cannot be brought up to standard in his ability to solve problems from a test without direct training in reading. Such a child, however, may be able to decide instantly and correctly upon the operation to be used, once the situation is grasped. For the present series of tests, however, it was deemed sufficient to measure the combined effects of these two abilities, leaving it to the teacher to determine the nature of the corrective work to be done in any particular case.

The test is uniform in the sense that (1) the four operations are each represented in each group of four examples; (2) each problem requires a single operation for its solution, and (3) the problems are closely the same length as to the space to be covered by the eyes in reading. The factors making for inequality are (1) inherent differences in the relative difficulties of the different operations;<sup>1</sup> (2) phrasing; (3)

<sup>1</sup> See page 145.



problems that may be easily read. For the third factor, it is evident that familiarity with the content of a problem will influence the length of time needed to grasp the situation presented. For this reason, problems were chosen whose content was judged "equally" familiar to the average city child. In regard to the fourth factor—variation in cue—little can be said. The writer is familiar with no study of the relative frequency of use, or of the relative force, of the various cues to be found in arithmetical problems. While, of course, the reasoning process in actual experiences is a process of adjustment to a given situation, reasoning work in arithmetic is too often a mere sensori-motor response to the stimulation of a certain word or phrase. In a large sense, this must always be true, and rightly so; but in a narrow sense the relative ability of two children in a reasoning test such as this may be determined, not by the true relative ability to reason, but by the difference in the number of times the children have met a particular cue. On this account the attempt has been made to avoid conventional cues and to present instead critical situations.

While the effects of these various unknown factors are believed to be small, this test and the other reasoning test—No. 8—to which the discussion above applies with even greater force, are likely to be the least uniform as to units, and the most difficult to reconstruct in different form. At the same time, these are the very tests in which alternative forms are most essential. Experimental and analytical work now under way may eventually throw light on the relative values of the various units, but, for the present discussion, in each of these tests the problems will be treated as of equal value.

#### **Details of Test No. 7**

Test No. 7, as shown in Fig. VII, is the most important and, from some points of view, the most complex of the series. The abilities tested are many; the more important are (1) knowledge and control of the forms and processes in the four operations; (2) knowledge and control of the fundamental combinations; (3) ability to "borrow and carry"; (4) ability to copy; (5) ability to follow instructions. The first two need no discussion, the third very little. In nearly all except the very simplest problems the necessity for borrowing and carrying exists. In the test provision is made for measuring the extent to which this factor affects the work. The first four examples involve no borrowing or carrying whatever. In the next seven the carrying is limited to small numbers—1, 2, etc. In the remaining examples larger amounts must be carried. A comparison of the number of examples attempted and right for the different groups gives at once a rough measure of the effects of these activities. The measure is approximate only, however, as the combinations used in the various examples differ; mistakes in the later examples may be due to the relatively greater diffi-



"Measure the efficiency of the entire school, not the individual ability of the few"

### ARITHMETIC—Test No. 7. Fundamentals

Name \_\_\_\_\_ School \_\_\_\_\_ Grade \_\_\_\_\_

In the blank space below, work as many of these examples as possible in the time allowed. Work them in order as numbered, writing each answer in the 'answer' column before commencing a new example. Do no work on any other paper.

SCORE	
No. attempted	_____
No. right	_____

Number	Operation	Example	Answer	Right
1	Addition	a $25 + 530 + 122 = \dots\dots$ (Write answer in this column) <i>per</i>	_____	_____
		b $232 + 8021 + 703 + 3030 = \dots\dots\dots$	_____	_____
2	Subtraction	a $5496 - 163 = \dots\dots\dots$	_____	_____
		b $943276 - 812102 = \dots\dots\dots$	_____	_____
3	Multiplication	$2012 \times 213 = \dots\dots\dots$	_____	_____
4	Division	$156664 \div 132 = \dots\dots\dots$	_____	_____
5	Addition	$6134 + 213 + 4800 + 6005 + 3050 + 474 = \dots\dots$	_____	_____
6	Subtraction	$73210142 - 49676378 = \dots\dots\dots$	_____	_____
7	Multiplication	$46506 \times 456 = \dots\dots\dots$	_____	_____
8		_____	_____	_____
9	Division	$27217182 \div 6 = \dots\dots\dots$	_____	_____
10	Division	$3127102 \div 463 = \dots\dots\dots$	_____	_____
11		_____	_____	_____
12	Addition	$\{ 65586 + 69665 + 39397 + 95836 + 37768 +$	_____	_____
13		$69666 + 78888 + 54967 = \dots\dots\dots$	_____	_____
14	Subtraction	$15655431 - 5878675 = \dots\dots\dots$	_____	_____
15	Multiplication	$78965 \times 678 = \dots\dots\dots$	_____	_____
16		_____	_____	_____
17	Division	$44502486 \div 7 = \dots\dots\dots$	_____	_____
18	Division	$5373003 \div 789 = \dots\dots\dots$	_____	_____
19		_____	_____	_____

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Fig. VII

culty of the combinations used. The fourth ability mentioned—ability to copy—is an important one in commercial work; at least, the foundation of rapid and accurate copying of lists of figures should be laid in the classroom. In taking the test, the child copies the figures of the examples on the blank paper provided as a part of the test sheet, arranging them in the proper position for work. Again, the answers, when found, are copied into the answer column. Analysis of the mistakes made shows inaccuracies and carelessnesses plainly. The last ability mentioned—ability to follow instructions—is tested at the same time. Failure to write answers in the answer column, failure to work the examples in order, and on the paper supplied, indicate an inability to pay attention to imposed details that would be troublesome, to say the least, in commercial work.

Uniformity in this test was difficult to secure. The plan followed is to allow one count for each item of the work in any example; i. e., copying a figure, thinking a subtraction (or a multiplication, etc.), carrying a figure, etc. The work was analyzed in minutest detail, and the

figures and work of each example so adjusted that the length of each was fifty counts, as nearly as possible. The division problems proved very long. These were eventually made 100 counts long, and credit given for two units on the scale. The length of the other examples was fixed accordingly, each example containing either 50 or 100 counts, and having a value of one or two units on the scale, as indicated by the numbering. As the tests are sometimes given to second and third-grade children, the first two examples were divided into two parts, that smaller examples within the abilities of the younger children might be provided, but in these cases the two answers together count for a single point.

It should be noted that normally, because of these peculiarities in the numbering and because a child was given credit only for examples completed, no scores of 10 examples attempted, 12 examples attempted, etc., would be given. The child that completed 10 examples must have completed 11 examples also. Practically, however, because a few children skipped examples here and there, such scores occur but they are sufficiently few in number to produce marked irregularities in the distributions of the scores for examples attempted. No such irregularities occur in the scores for examples right as there the scoring was point by point.

That the examples vary in difficulty for any one individual is conceded, but it is believed that they would be of equal value to that ideal individual who could add, subtract, multiply, divide, copy figures, and "borrow and carry" with equal facility. Practically the examples increase slightly in difficulty, it being more difficult for the average person to "carry" correctly large numbers than small; but here, as previously, no serious errors are made in the inferences drawn from the results, if the scores are regarded as equal units along an absolute scale.

The truth of the last statement has been shown by repeated tests of the same classes, and more specifically by the following experiment. Thirteen subjects—the examiners described below<sup>1</sup>—took the tests three times in ten days. They became very familiar with the examples and answers, but not familiar enough to remember all the actual work. In a final trial the time intervals of minutes were marked by the stroke of a bell. Each subject wrote a "T" in her work at the exact point where she happened to be at each stroke of the bell. In the final scoring, the number of examples and parts completed at the end of each minute were determined. As, however, an edition of Test No. 7, different from that of the tests of the New York schools, was used, the experiment was later repeated with the same edition. In this trial there were but seven subjects. The results from both trials are given in Table II and Fig. VIII.

<sup>1</sup> See page 32.

**Table II—Relation Between Time and Work Completed in Test No. 7, to Show Equality of Units**

		MINUTES								
		1	2	3	4	5	6	7	8	9
1st TEST	SUBJECTS	NUMBER OF EXAMPLES COMPLETED								
	A.....	3.5	4.5	8.0	11.0	13.0	16.0	17.0	19.0	.....
	B.....	2.0	4.3	6.0	8.0	10.0	11.5	12.5	14.0	16.0
	C.....	2.5	6.0	8.0	9.5	11.0	13.5	15.0	.....	.....
	D.....	2.0	4.0	5.0	7.0	9.0	10.0	12.0	14.0	15.7
	E.....	2.5	4.2	6.5	10.0	11.5	15.0	16.0	17.0	18.5
	F.....	2.5	5.5	8.5	9.5	10.5	13.5	14.5	16.5	18.0
	G.....	2.5	4.5	7.0	10.0	12.0	14.0	15.5	17.7	18.0
	H.....	2.3	5.0	7.0	7.5	7.9	10.0	11.5	13.8	16.0
	I.....	2.9	6.0	9.9	11.9	13.9	16.0	17.0	18.0	18.7
	J.....	2.2	4.0	6.0	8.0	10.0	12.0	13.0	15.0	16.0
	K.....	2.0	3.2	5.2	7.7	10.5	12.0	12.7	14.7	15.7
	L.....	2.0	6.0	7.2	8.7	9.7	10.7	12.2	13.0	.....
	M.....	2.0	3.7	5.0	6.0	8.2	11.0	11.7	16.0	17.5
Average Number of Ex- amples Completed...		2.4	4.7	6.9	8.8	10.6	12.7	13.9	15.7	17.0
2ND TEST <sup>1</sup>	SUBJECTS	NUMBER OF EXAMPLES COMPLETED								
	H.....	2.7	4.7	6.8	8.0	9.8	10.6	11.4	12.9	13.3
	L.....	2.5	4.5	5.7	8.2	9.5	11.1	12.9	14.6	15.7
	N.....	2.5	4.0	6.5	9.0	12.0	13.2	15.5	17.2	18.4
	O.....	3.7	7.8	10.8	14.3	17.2	.....	.....	.....	.....
	P.....	2.0	4.1	5.8	8.1	10.0	12.0	13.7	15.0	16.8
	Q.....	2.8	4.9	7.8	10.7	11.3	13.9	15.8	17.3	.....
	R.....	2.0	4.5	6.0	8.5	10.0	12.3	13.6	15.0	16.2
Average Number of Ex- amples Completed...		2.6	4.9	7.1	9.5	11.4	12.2	13.8	15.3	16.1

<sup>1</sup> The subjects were more familiar with one edition than the other.

In interpreting these results, however, it must be remembered that few individuals reach the ideal development called for in the assumptions upon which the equality of the units is based. Nevertheless, it will be seen that, except for the more difficult examples, the results are not widely different in the two trials, either in the comparison of the two editions of the test, or in the unit of either test. And part of the apparent irregularities must be ascribed to the small number in the groups, and to the elimination of the more rapid workers.

The length of the examples in this test has been frequently criticized. It must be remembered, however, that the ability in arithmetic, produced by school training, has been frequently attacked by the com-



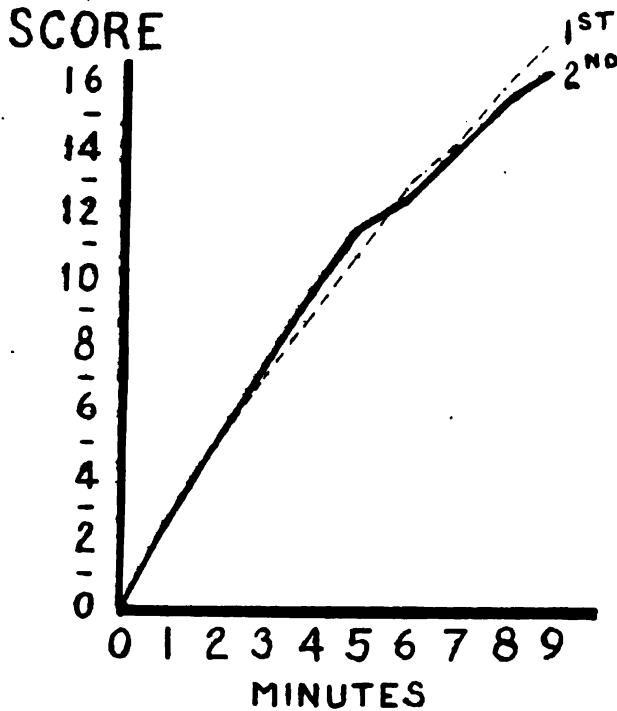


Fig. VIII

Relation between time and work completed in Test No. 7, showing approximate equality of units. First curve based upon average scores of thirteen subjects; the second on the average score of seven. Irregularities in both curves due to greater difficulty of the later examples and to the elimination of certain of the subjects.

mercial world; that endurance is one important factor in commercial work; and, finally, that choice must be made between a large number of small examples, or a smaller number of large examples. Perhaps the best answer that can be given is that 20.5 per cent. of the children in the fourth grade were able to complete the first eleven examples in the time allowed. For the rest, it only remains to be said that all grades were affected alike by this or by any other feature.

#### Details of Test No. 8

The final test—No. 8, Reasoning, shown in Fig. IX—has already been partially discussed in connection with Test No. 6. There are a few distinctive features, however. As each problem involves two operations the effect of phrasing, mentioned above, is even more marked here, where more complex situations must be presented. Each pair of problems is made to cover the four operations. The relative difficulty

## Table

18T T

Av

2.

tively and more difficult to interpret qualitatively than any of the others. That the test nevertheless has a value will be seen from the discussion below. And it can at least be said that the test has been carefully prepared with due regard for the existing knowledge of the elements of which it is composed. The writer believes it to be superior in all essential respects to all other tests that have been used as measures of the reasoning abilities of children in arithmetic. Nevertheless, much experimental work must be done before a really satisfactory test of this character can be constructed.

From the foregoing, it must be evident that the tests are scientific measures of the different abilities enumerated and are in no sense "examinations." The perfection of their present form was attained only through a long process of evolution, and of elimination of defects by trial in the classroom. And it is essentially this care in their construction which gives meaning to the results below and makes studies of relations between the abilities possible.

### Details of Record Sheet

As the tests were designed for general classroom use, many provisions for rapid and accurate scoring of results by the children are found in the papers. All tests carry in the upper right-hand corner a scorecard in which the child enters the number of answers written in the time al-



*"Measure the efficiency of the entire school, not the individual ability of the few"*

SCORE	
No. attempted	_____
No. right	_____

### COURTIS STANDARD TESTS

#### Record Sheet—Arithmetic

Room \_\_\_\_\_  
 Name \_\_\_\_\_ Age last birthday \_\_\_\_\_ School \_\_\_\_\_ Grade \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_ Date \_\_\_\_\_ Hour \_\_\_\_\_

#### SCORES

Speed Test—Fundamentals	Attempted	Right		Attempted	Right
1. Addition .....			5. Speed Test—copying figures		
2. Subtraction .....			6. Speed Test—reasoning		
3. Multiplication .....			7. Fundamentals .....		
4. Division .....			8. Reasoning .....		
Total of Tests No. 1 to 4....					

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Fig. X

lowed.<sup>1</sup> In Tests Nos. 1, 2, 3, 4, and 5, the spacing of the separate units into groups of five makes for rapid and accurate counting. In Tests Nos. 6, 7, and 8, the answers are written in an answer column, and are easily found and counted. The children also enter their scores for "Examples Attempted" in a record sheet, shown in Fig. X.

Provision is made on this sheet for recording other significant facts in regard to the children—names, ages, grades, etc. Sex was shown by boy or girl written above the name. The scoring not done by the child was completed by the teacher after the correction of the papers.

### Order in Which Tests Are Given

The tests were printed from plates, and bound by a small staple in the upper left-hand corner into sets as follows: Set 1—Record Sheet, Tests 5, 2, 8, 3; Set 2—Tests 4, 6, 1, 7. The order is that which experience has proved best. Test 5 was least influenced by the long exposure during the first giving of instructions. Test 2 was chosen to precede Test 8 as having the least influence upon it. Test 8 was given before the remaining tests that its results might not be influenced by them; Test 7, the other complex, was put last that it might be influenced by all alike. Of the remaining tests, No. 1 was put as late as possible because many children, having once added, find difficulty in immediately undertaking other speed tests. The tendency to add persists.

### Time Allowances

The time allowances for the various tests were as follows: Tests Nos. 1, 2, 3, 4, 5, and 6, one minute each; Test No. 7, twelve minutes; Test No. 8, six minutes. Although the total time allowed was but twenty-four minutes, the actual time required for testing of an average class, including passing of papers, giving of instructions, etc., was from sixty to eighty minutes. The division of the tests into two sets made it possible to give them in two school periods of forty minutes each. As a rule, the sets were given on successive days, but in some cases in the morning and afternoon of the same day. Work was done in pencil. No additional paper of any kind was used, the blank paper necessary being a part of the tests.

<sup>1</sup> For a discussion of the accuracy of the children's scoring, see page 42.

Table III.—Distribution of Completed Record Sheets by Boroughs, Grade and Sex (see page 30)

Grade	4A		4B		5A		5B		6A		6B	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Borough												
Manhattan.....	473	692	607	659	614	734	718	826	595	783	533	794
Bronx.....	285	178	224	172	214	178	239	152	173	165	195	144
Brooklyn.....	485	471	607	530	482	515	592	583	591	556	572	581
Queens.....	64	71	71	76	60	71	43	88	73	30	67	60
Richmond.....	35	20	32	29	26	28	39	45	32	30	47	49
Totals.....	1,342	1,432	1,541	1,466	1,396	1,526	1,631	1,694	1,404	1,564	1,414	1,628

Grade	7A		7B		8A		8B		Totals		Grand Totals	Percent of total Enrollm't Grades 4-8 inc.
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls		
Borough												
Manhattan.....	537	536	549	476	484	509	547	481	5,657	6,490	12,147	9.7%
Bronx.....	191	159	144	171	122	134	116	136	1,589	1,589	3,492	9.9
Brooklyn.....	462	437	446	476	501	474	495	387	5,233	5,010	10,243	8.9
Queens.....	65	17	62	45	24	66	44	48	573	572	1,145	4.5
Richmond.....	18	28	35	37	26	30	28	32	318	328	646	9.7
Totals.....	1,273	1,177	1,236	1,205	1,157	1,213	1,230	1,084	13,684	13,989	27,673	9.0

Grade	9A		9B		10A		10B		11A		11B		12A		12B		Totals		Grand Totals
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
School																			
Morris High School.....	44	64	22	24	19	37	22	40	23	37	22	39	21	38	18	43	191	322	513
Mott Ave. Annex.....	55	113	31	87	22	61	15	41	14	16	7	21	..	..	..	..	144	339	483
Totals.....	99	177	53	111	41	98	37	81	37	53	29	60	21	38	18	43	335	661	996

<sup>1</sup> On basis of reports to Committee on School Inquiry, June 30, 1911.

<sup>2</sup> Examination of certain selected schools omitted owing to lack of time.

## Section III

## General Plan of the Investigation

## Selection of Schools

The resources placed at the disposal of the writer for the purposes of the investigation and the short time in which the work had to be done made it necessary to limit the testing to certain schools and certain grades. After due consideration, it was decided to test one-tenth of the school population of grades 4-8, inclusive, and, in addition, one general and one commercial high school—approximately 33,000 children in all. To allow for loss through absences, failure to follow instructions, teachers' mistakes in scoring, etc., schools and classes were selected having a total register of 40,000. The actual number of children to whom the test was finally given was 33,350, and the resulting number of completed record sheets was 28,669, distributed as shown in Table III, p. 29.

Table IV—Distribution of Schools and Number of Classes Tested in Each

MANHATTAN		BRONX		BROOKLYN		QUEENS		RICHMOND	
School Number	Number of Classes	School Number	Number of Classes	School Number	Number of Classes	School Number	Number of Classes	School Number	Number of Classes
No.		No.		No.		No.		No.	
3	18	1	16	4	11	1	18	1	11
9	18	6	18	5	29	6	19	14	12
10 B & G	22	9	30	7	10	.....	.....	.....	.....
11	16	14	10	8	10	.....	.....	.....	.....
23	25	26	10	64	30	.....	.....	.....	.....
24	12	35	15	72	22	.....	.....	.....	.....
36	24	36	15	84B	21	.....	.....	.....	.....
43	24	Morris High Mott Av. Annex	18	84G	11	.....	.....	.....	.....
46	32	.....	16	90	6	.....	.....	.....	.....
52	5	.....	.....	92	27	.....	.....	.....	.....
56	16	.....	.....	97	6	.....	.....	.....	.....
58	10	.....	.....	105	6	.....	.....	.....	.....
65B	16	.....	.....	110	24	.....	.....	.....	.....
65G	13	.....	.....	132	12	.....	.....	.....	.....
69	23	.....	.....	144	27	.....	.....	.....	.....
79	13	.....	.....	149	25	.....	.....	.....	.....
104	14	.....	.....	160	15	.....	.....	.....	.....
132	27	.....	.....	164	23	.....	.....	.....	.....
159	18	.....	.....	.....	.....	.....	.....	.....	.....
166	18	.....	.....	.....	.....	.....	.....	.....	.....
190	16	.....	.....	.....	.....	.....	.....	.....	.....
Total No. 21	380	9	148	18	315	2	37	2	23

Total number of schools, 52.

Total number of classes, 903.

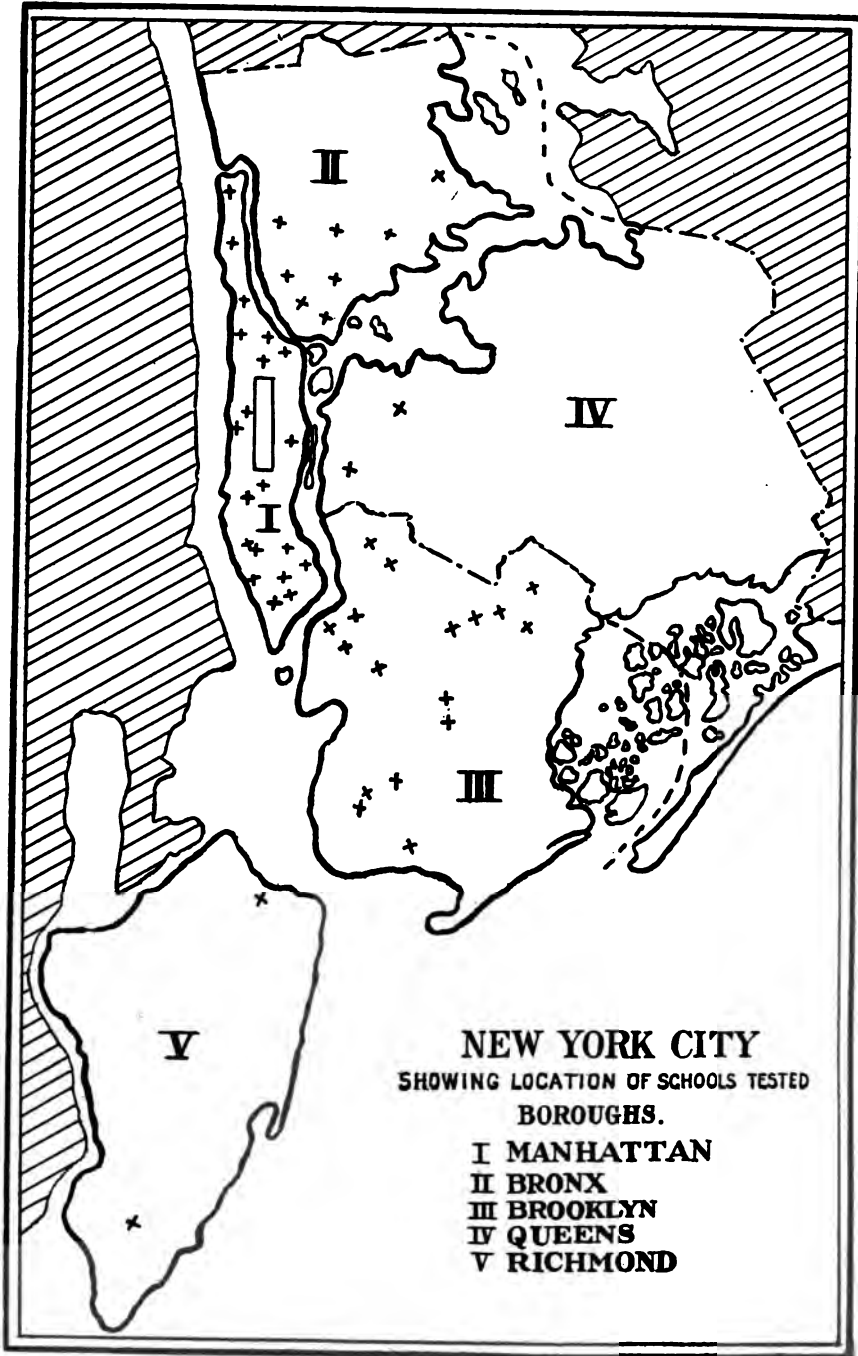


Fig. XI

Of the total number but 27,171 records are included in the general tabulations. The difference—1,507 records—is due to the rejection of the records of one entire school,<sup>1</sup> the exclusion of records from “E” classes, and of such other records as were found in the tabulations to contain impossible scores. (For instance, a score of 160 in a test in which there were but 120 examples.)

The basis for the selection of schools, while largely geographical, was practically a chance selection, as it was made without other knowledge of the schools than size, number of children and classes, and type—boys, girls, or mixed. In certain schools, every grade was tested; in others, only selected grades. The schools chosen and the number of classes in each are shown in Table IV, p. 30.

The geographical distribution of the schools is shown in Fig. XI.

### **Relations with Principals**

A list of the schools selected was sent to Superintendent Maxwell on March 11. A letter was at once addressed by the City Superintendent to each principal, notifying him of the proposed test, without giving details, and directing him and his teachers to give such assistance in the work of examination and scoring as might be necessary. To explain the nature of the investigation and of the assistance needed, the writer personally visited each school and discussed the work with the principal. Some were found already familiar with the tests through magazine articles or direct correspondence. In many cases, however, misunderstandings existed; but upon explanation of the real purposes of the work cordial relations were at once established. During the course of the investigation rumors reached the Committee that, in a part of Brooklyn and in certain schools in Manhattan, written copies of the tests had been passed from principal to principal, and that, in a few cases, the principals had availed themselves of this opportunity, and had carried on, through several weeks, active preparatory work, ranging from general reviews and drills to direct preparation on the specific tests to be used. The precautions taken to safeguard the results from the effects of such preparation are discussed below.

### **Details in Regard to the Force of Examiners**

The force of assistants supplied to act as examiners was drawn from the unassigned substitute teacher list. But one male substitute was secured. Many of the girls had been given the tests the year before in the training school and were already familiar with the general procedure. They proved quick to learn, enthusiastic, and resourceful, and that the plans of the investigation were so completely carried out is due in large part to their careful work. From the standpoint of their own prepara-

<sup>1</sup> See page 41.



tion for teaching, the experience was a good one, and if similar studies were included as a part of the regular training course, much valuable work along such lines could be accomplished every year at slight expense.

The total number of examiners employed was eighteen. Not all of these served the whole time, however, as several were appointed to positions during the period of examination. The bulk of the work of examination was done by fourteen persons. The period of examination extended from Friday, March 15, to Friday, April 26, not, of course, including the spring vacation, April 1 to 5. No tests were given in the elementary schools on the three days immediately following vacation, this time being devoted to the tests of the high schools, on the theory that the ability of the older children was less likely to be affected by the vacation period.

#### **Details in Regard to the Procedure in Examinations**

An examiner, on entering a room for work, explained the nature of the tests to the children, cautioned them against looking at the papers until told to do so, and, with the assistance of the children, distributed the sets of tests. When all were supplied, the children, under the guidance of the examiner, filled out the blanks in the heading, writing boy or girl above their names, recording their ages at last birthday, the number of the school and its borough, the grade, room number, day of month and week, and the nearest even hour. This completed, the sheet was torn off and placed at one side of the desk.

In preparing the children for the first test, No. 5, Copying Figures, the instructions printed on the test were read aloud in concert by the class and examiner and then repeated, with explanations by the examiner alone. Opportunity was given for questions by the children as to the meaning of the instructions.

The children were told that the same tests were being given in other classes and other schools and were urged to do their best for the honor of the school.

The necessity for all commencing work at the same time and stopping at the same time was explained and the workings of a mechanical timing device demonstrated. The children were taught to turn the tests face down, retaining hold of the papers with their left hands, so that they would be able to turn them over on receiving the signal to begin. At the same time they raised their pencil hands in the air as if they were going to ask a question. Then, at a stroke of the bell from the timer, the papers were turned over and the work begun. At a second stroke of the bell, work stopped, the examiner making sure that all did actually stop by requiring that the pencil hands be raised again.

Under the examiner's direction the children counted the number of answers, writing it in the scorecard on the test and on the record sheet. The examiner then asked those who had a score of more than 100, 90, 80,

etc., to stand, and chose from these the one having the highest score. The name and score of this child were written on the board by the teacher. Then the blanks on the tests for "name" and "grade" were filled out, the sheet torn off and placed under the record sheet, the other papers being kept face down, except at times when instructions were being read, etc. Exactly similar procedure was followed with the remaining tests with such slight variations in timing and instructions as were made necessary by the differences in the tests. At the close of the first period the papers were fastened with a clip and taken up carefully in order, so that they were easily distributed with the second set at the second visit. At the close of the second visit, the papers were arranged by the children in order of number, and fastened together with a clip.

### Details in Regard to the Scoring

The bundles of papers from the different grades were stored with the principal until such later time as was convenient for an examiner to meet with the teachers. Then printed instructions for scoring the papers, and a printed answer card for checking examples right, were given to each teacher. The instructions were gone over carefully by the examiner, following which the teachers worked on the papers in the room with the examiners for periods varying from fifteen minutes to an hour. The examiner herself corrected, in every school, the papers from at least one grade and answered any questions necessary to further explain the instructions.

The scoring of the various papers has been partially explained above. It will be remembered that in Tests Nos. 1 to 5 the scores represent the number of answers written per minute; in Tests Nos. 6, 7, and 8 the number of examples attempted and the number right. No scoring of rights in Tests 1 to 4 was made, as experience has shown that the mistakes, except in the zero combinations in multiplication and the zero and one combinations in division, are too few in number to pay for the labor expended. The sight of two figures in position for addition, for instance, serves as a stimulus to which the habitual response must be made, if any. That is, a child that does not know his tables is apparently unable to make up and write any answer. Caught in the grip of a situation to which he has previously made response, he apparently must go through some habitual process of recall before he can even write an incorrect answer. In fact, so powerful is the grip of habit that most children persist until the right answer is recalled, ignorance of the tables being shown, not by incorrect answers, but by low scores. For instance, in an examination of 3,084 papers of Tests 1-4, a total of 126,589 answers were written, of which 3,780 (not including exceptions noted above) were wrong, the rights being 97 per cent. Errors were greatest in multiplication (4.8 per cent. of multiplication answers written); second, in division (4.2 per cent.); third, in addition (1.99 per

cent.); and least in subtraction (1.8 per cent.). The teacher did, however, for Tests 1-5, carefully check the score written by the children, and also made sure that the right operation had been performed in each case. In the remaining tests, the scores for number of examples right when found by the teacher were also entered on the record sheet. The total of scores in Tests 1-4 was also found for each complete record sheet. The complete and incomplete record sheets from a school were put into separate bundles.

#### **Details in Regard to the Tabulation**

The completed record sheets were delivered to the Statistical Service Company and by them cards were punched to show the data of the record sheets, and these were tabulated by machinery. The papers from certain schools were analyzed as to the character of mistakes made, and certain minor tabulations were completed by an office force working under close supervision. For the most part, schemes of analysis and tabulation have followed closely the printed directions found in the Manual of Instructions for Giving and Scoring the Tests, and will not be repeated here. The data from the same will be found below.

### **Section IV**

#### **Validity of Results**

The validity of the conclusions reached in an investigation of this character is directly dependent upon the reliability of the data secured. Therefore, the precautions taken to insure uniformity of conditions and to determine the degree of dependence to be placed upon the results will now be discussed in detail. The factors contributing to the reliability of the results are (1) uniform tests, (2) uniform conditions in giving the tests, (3) uniform scoring of papers, (4) accuracy in scoring, and (5) accuracy in tabulation. Each of these will be discussed in turn.

#### **Uniform Tests**

The question of uniformity of tests has been fully discussed in connection with the nature and construction of the tests; it remains but to add that, in the use of these tests by many schools, uniform and consistent results have repeatedly been obtained. One of the first questions that is likely to arise in the mind of any person considering such educational measurements for the first time is whether or not a repetition of the tests after an interval of a few days would yield results at all comparable with those from the first test; whether, in other words, educational products have a sufficiently concrete and constant existence to be susceptible

of measurement in the sense in which material objects are measured. This question the writer has already discussed in detail elsewhere;<sup>1</sup> and the evidence which proves that, for all groups of any size and for many individuals, constant results are obtained in repeated measurements, will not be repeated here. A single illustration is given in this report. In Fig. LII, page 150,<sup>2</sup> are shown the scores of three individuals measured in their abilities in Test No. 3 (multiplication) at intervals over a period of three school years. The records are random selections from one grade in the Liggett School, through the courtesy of the principals, the Misses Liggett. It will be seen that, in spite of fluctuations due to the various influences at work—class drill, vacation, etc.—only minor variations occur in these measurements repeated at short intervals.

### Uniform Conditions During Examinations

Second only in importance to uniformity in the tests themselves, uniformity in the conditions under which the examinations are conducted is essential to legitimate comparison of results from grade to grade, and from school to school. But since uniformity in this respect is dependent upon the behavior of human agents, absolute uniformity is out of the question. The most that can be done is to reduce the amount of variation to a minimum through control of the various factors influencing the result. These were (1) timing, (2) the preparation of the examiners, and (3) the preparation of the children.

### Timing

Of the various factors directly within the control of the examiner, variations in timing are certain to have the greatest effects. In this investigation, resort was had to mechanical timing. Each examiner was furnished with an electric timing device in which, upon the closing of a switch, a bell was sounded once a minute by clockwork. As previously noted, the actual work upon each paper was commenced and ended at the stroke of the bell. In the longer intervals for tests Nos. 7 and 8, the examiner turned off the switch immediately after the beginning of a test, set the hands of the clock exactly at the even hour or half hour, so that the number of minutes elapsing might be directly indicated by the clock, and then from half to three-quarters of a minute before the end of the interval turned on the switch so that the closing signal and the exact length of the period were determined by the clock. In two cases the apparatus broke down, and for part of the day the timing was done with an ordinary watch, but, in the data as a whole, errors due to timing need not be considered.

<sup>1</sup> *The Elementary School Teacher*, Vol. XI, No. 10, June, 1911.

<sup>2</sup> See also p. 72.

### **Training of Examiners**

Under ideal conditions, the same test would be given to all the children at one time by one examiner. Practically, however, it was necessary to employ many examiners, as noted above, and the period of examination extended over many days. Under such conditions, uniformity in the work of the examiners becomes an important factor, and the examiners were carefully trained for their work. The first day was devoted wholly to mastering the procedure and to practice. The writer personally gave the tests to the examiners exactly as if they had been a class of children. Then a printed folder of directions was given to each one for study. Later in the day, each of the examiners gave a test in turn, criticism and discussion following each attempt. After a night of study and practice at home, the entire force gathered at the first school, and, with the writer acting as examiner, they took the tests with the children. Each examiner was then assigned a room for examination, and the writer passed from room to room, critically supervising the work. For several days, the entire force was kept working in single schools until it became evident that conditions had become settled. Then the force was divided among the different boroughs and schools, from one to four examiners being sent to a school at one time. Each new examiner taken on was required, after study of the printed instructions, to spend a day taking the tests with the children in rooms being examined by those of the force already trained. Frequent inspection at intervals during the period of examination was also made both by the writer, by other members of the Committee, and by at least one outsider, Professor Stuart H. Rowe, of the Wadleigh High School, whose report to his superintendent, Mr. Stevens, describes his visit of inspection and commends the examinations he witnessed.

The total number of "examiner days" was 267. As 903 classes were visited twice, this corresponds to an average for each examiner of 6.8 tests a day. The number of times the instructions for the entire series were repeated by any one examiner varied from eighty to twelve, averaging fifty times for all. It will be seen, therefore, that, together with the careful initial training, the work itself tended through mere repetition toward uniformity of conditions.

### **Answering of Questions**

In the account of the giving of the tests (page 33) it will be noted that provision was made for the answering of children's questions by the examiners. The instructions given to the examiners were that they were to be very guarded in the questions they answered. In the school room it is the common practice of teachers to get as much as possible from every child, but for the purposes of this investigation it was de-

sired to measure the response of the children to a uniform stimulus. On the other hand, experience has shown that classes differ markedly in their abilities to take oral instructions. As the abilities to be measured were arithmetical, the complication of "response to oral instructions" could only be removed by modifying the situation. From one point of view, therefore, the situation created was not uniform from grade to grade. Questions were answered by the examiners until, *in their judgment*, the room generally had grasped the meaning of the instructions given. It is particularly to be noted, however, that this point was carefully gone over with the examiners; that the questions asked concerned merely the method of the child's performance, and in no way influenced the achievement; that all cases of failure to follow directions were ultimately discarded, and, finally, that the small range of variation in the grade averages proves the precautions taken to have been effective.<sup>1</sup> Practically few questions were asked.

### Effect of Personality

A further factor to be considered is the difference in the stimulus of the situation created, due to the personality of the examiner. A vigorous, snappy presentation by an examiner in full control of a room would, unquestionably, arouse keener interest and call out greater effort than that of a weak personality. The effect of this factor is entirely unknown. As it was difficult to secure a sufficient number of examiners, there was little chance for selection among those who applied. It should be remembered, however, that selection of one sort had already been made, that the examiners were all from New York, were already familiar, through practical teaching experience, with the classrooms and children in the schools tested, had all received the same professional training, and were closely of the same grade of ability, as determined by their marks in the training school, and, finally, that no gross inequalities in their work as examiners were observed. The effects of the factor "personality" were at least reduced to a minimum.

### Checks

As a check upon the uniformity of work of the examiners, a study was made of the complete and incomplete record sheets from the first school examined, the one in which any lack of uniformity would be most evident. Of 33,350 children examined, there were 4,672 record sheets upon which one or more scores were missing. In 3,099 of these, the causes were absence of the child for part of the day, mistakes of the scorers, etc.; i. e., causes not due to the work of the examiners. In 1,573 record sheets, the cause, however, was failure of the child to follow instructions. This may or may not be due to the faulty explanations

<sup>1</sup> See page 65.

of the examiner; but, where a number of children fail to follow instructions in the same test, the cause is likely to be in the examiner and not in the children. In Table V the work of the different examiners for the day is compared. The total number of children tested is given, also the number, and per cent. of the total, of the papers in which the child has used the wrong operation, and the number of the tests.

Table V—Uniformity of Conditions During Examinations

Analysis of Incomplete Papers from First School Examined

Exam- iner	Number of Children Examined	Number of Incomplete Papers	Per Cent. Incomplete	Number Not Following Instructions	Per Cent. Not Following Instructions	Test-Number of Tests in Which the Wrong Operation Was Used
A	53	3	5.6	0	.....	.....
B	56	3	5.4	3	5.4	5, 6, 7, 8, 2, 7, 8
C	57	13	22.8	6	10.5	3, 6, 6, 6, 6, 6
D	66	5	7.6	0	.....	.....
E	62	7	11.3	4	6.5	2, 3, 6, 5
F	33	2	6.1	0	.....	.....
G	67	9	13.4	4	6.0	2, 2, 3, 6
H	42	1	2.4	1	2.4	5
I	39	6	15.4	6	15.4	5, 5, 5, 5, 5, 5
J	76	5	6.6	5	6.6	6, 6, 6, 6, 6
.....	551	54	9.7	29	5.3	.....

It will be seen that, with the exception of examiners C, I, and J, the results are satisfactory. A few children in each room will, quite generally, fail to follow instructions, and the explanations ought not to be continued until *all* understood. In the final totals, 4.7 per cent. of the total number of records were incomplete from this cause. In the case of Examiner "I," however, that 15 per cent. of the class should fail to follow instructions in test No. 5 is proof that the children were hurried. Checking of later tests, conducted by this and the other examiners, proved that this difficulty was soon overcome. From observation of the work of examination, and from checking of the results, therefore, the work of the examiners was kept at least to a practical uniformity.

### Preparation of Classes

Still another factor to be considered is the effect of variations in the preparations of the children for the tests. This was of two types—legitimate and illegitimate. The variation from school to school in the attention given to arithmetic was marked. In some schools the arithmetical work was at a minimum, unassigned time and the energies of both teachers and principal being given to other subjects in the curriculum. At the other extreme were schools in which arithmetic was the

favorable subject. Here the regular use of "speed tests," "straight ahead" work, and the like, constitutes a legitimate preparation for the tests of the investigation. The children in such schools, entirely apart from the effects of such work on their abilities, are accustomed to paying attention to directions, to commencing work promptly on a given signal, etc., all of which would tend to increase their scores. No reliable measure<sup>1</sup> of the effect of such preparation can be obtained, nor is it needed. The qualities of alertness, promptness, and so on, in arithmetic, may make for "general efficiency" and the higher scores shown by such schools over their neighbors, where such difference exists, may well be credited to method. In response to a questionnaire, forty-eight schools, or 92 per cent., report the use of speed tests, or similar practice work, as a regular part of school procedure—50 per cent. making use of the same daily.

### Illegitimate Preparation

Of quite a different character, however, might be the effect of the illegitimate preparations, that, it was rumored, were carried on through several weeks by a few principals and teachers. Here a high score would not denote real ability, but a deceptive imitation, due to "cramming." Fortunately, the fact that, for most tests, the abilities tested have been slowly built up, through years of practice, and are susceptible to no sudden change, removes the possibility of great deception being practiced. If the giving of the tests once, or twenty times, would generate the abilities they are designed to measure, no better argument for their general adoption could be found. In tests Nos. 6 and 8, however, the effects of cramming are to change the situation entirely. In legitimate work, a large part of the effort must be expended, as has already been pointed out, in getting the meaning of the words. Cramming removes the necessity for this effort. Moreover, the examples completed are few in number, so that the answers are easily memorized. In these tests, a high score, due to special preparation, does not mean ability to solve other problems of the same kind.

It was unfortunate, to say the least, that it was needful to consider at all the question of the effects of illegitimate preparation. However, as the question was raised, two important consequences have resulted: (1) careful tabulation of all returns by individual classes, and close scrutiny of the resulting averages, to detect abnormally high scores, or irregularities in the distributions within the classes, and (2) attempted measurement of the effects of such preparation. For the first, it can be said that little trace of irregularities was found. The class averages of one school

<sup>1</sup> It is known, however, that, in the speed tests, a second trial immediately after the first shows on the average an increase in score of about 12 per cent. As this is almost wholly due to familiarity with the procedure, etc., it is probable that the effect of legitimate preparation, aside from the benefit of the drill (if any), would be within this figure.



were abnormally high, and its results were rejected altogether.<sup>1</sup> For the most part, however, it is probable that the scores in those schools, of which the principals were sufficiently afraid of the tests to make special preparation, would not have been high, and the effect of the special work, if any, was not sufficient to raise the averages of the school above the general level. It is extremely probable that the effects of such special preparations are negligible. At most, because of the small amount of increase in score, and, because of the few causes in which special preparation was suspected, the net effects would be to make the general results slightly better than actual conditions. A comparison of the average standing of the first five schools examined with that of the last five does not reveal any marked difference in the scores. Sixty-three per cent. of the grade averages of the first group, and 42 per cent. of the other, fall above the average score for all the schools examined.

In view of the possible effects of cramming, a measurement of a specific case becomes of interest. A Brooklyn school was selected for a test case. Rumors, and several suspicious circumstances, had made it practically certain that some preparation had been attempted in the school—how much, of course, could not be learned. The measurement of the resulting effects was possible, however, since, at the present time, two editions of the Curtis tests have been published, the care taken in their construction making it possible to construct other tests of exactly equal value (with the exceptions previously noted), but different in every figure. In testing the school in question, half of each class was given tests of the first edition, and the other half of the second edition. Tabulation of the results gave the following data:

**Table VI—Effect of Special Preparation**

Comparison of the scores of one section of each of the classes of a school with the score of the other section. One section was given copies of the first edition of the tests, the other section, copies of the second edition, both sections being tested at one time.

GRADES	4	5	6	7	8	TOTALS
First Edition.....	13 H	7 H	16 H	17 H	13 H	66 H
Second Edition .....	12 H	11 H	14 H	14 H	17 H	68 H
Total.....	25	18	30	31	30	144

H means higher score. The figures indicate the number of times, i. e., out of twenty-five tests of the 4th grade classes, the scores from the first edition were slightly higher in thirteen cases.

<sup>1</sup> The basis for this action was (1) abnormally high scores; (2) the report of the examiners that in giving Test No. 8, Reasoning, in the first set, the children quite generally followed the procedure for Test No. 6, Speed Reasoning, in the second set, instruction for which had not yet been given; (3) the testimony of a child in the school. One of the examiners engaged in settlement work reported that, upon showing a copy of the tests to a group of boys, one from the school remarked that they were practicing with those every day.

The results in the last column of the table show that the effect of special general practice is practically negligible. In Test 7, for example, the maximum effect found in any class was a difference in score of three examples. The number of cases of marked difference was seventeen, out of a possible 144. A few teachers seem to have given a little practice on certain tests, but, as a whole, the effects of the practice were too slight to warrant further tabulation of the data. This does not mean at all that effective preparation for such a test could not be made; merely, that such preparation as was made, in ignorance of the purpose of the tests and the method of testing, was not a source of serious error in our conclusions.

### **Uniformity of Scoring**

Given uniform tests, and uniform conditions during the testing, the results may still be unreliable through lack of uniformity, or through inaccuracy, in the scoring. Equal care, therefore, was taken with these phases of the work. Uniformity was secured through simplicity of scoring, through the use of printed directions, covering every point of the work, and by having the teacher's first scoring done in the presence of a trained examiner, able to explain authoritatively the correct scoring in all doubtful cases.

### **Accuracy of Scoring**

The accuracy of the scoring was tested in several ways. As has already been noted, the papers were, for most of the tests, first scored by the children. The accuracy of this scoring, as determined by careful checking of more than 2,000 papers, was over 92 per cent.,—i. e., of 14,345 scores examined, 1,129 mistakes were made. The effect of these errors would be trifling. In 982 cases the amount of the error was so slight that it would not displace the child's score two divisions from its proper place in the class distributions. A little more than 1 per cent. of the scores were seriously incorrect. To decrease even this small amount of error, however, the teachers were required to look over and check the children's scores. The final scores, as tabulated, represent truly, therefore, the actual scores made.

### **Checks**

The entrusting of the scoring of "examples right" to the teachers might be thought to open the way for many errors of carelessness and dishonesty to creep into the results. It is believed, however, that this was not the case. The scoring consisted in checking, from a printed answer card, the answers right or wrong, written by the child in the "answer column" on the paper, and counting the number of answers right. The printed instructions, and the personal assistance given each teacher, made it possible to keep conditions strictly uniform. But, to

make certain, two precautions were taken: (1) At least one grade<sup>1</sup> in each school, and often more, was corrected by the force of trained examiners, and (2) the teachers' scoring was checked in a sufficient number of cases, in every school, to determine the general accuracy of such work. For instance, fifty-four teachers, in recording 10,624 scores, made 639 errors, mainly in Test No. 7, an inaccuracy of 6 per cent. But the careless and inefficient person is found in the teaching force, as elsewhere, and twelve other teachers, in recording 3,850 scores, made 881 errors, an inaccuracy of 23 per cent. In these classes the papers were re-scored. The effect of such carelessness is, however, not as serious in the general result as might be supposed. One class, in which an excessive number of errors in scoring had been made, was tabulated both before and after the papers had been re-scored. In no test, however, was the grade average raised by the errors more than part of one division of the scale, the errors being about as often against the child as for it. About 18 per cent. of the teachers were found to be careless or inefficient in scoring, which in itself is a measure of one phase of the administrative efficiency of the system. Little trace of dishonest scoring was found. These results prove that subdivision of the work of scoring among teachers of a school system is, with the proper safeguards, a practical expedient. It is not contended that the results are comparable with those where all the scoring is done by a small trained force. In the latter case, however, the labor expense of such scoring, in an investigation of any size, is very large—large enough, at any rate, to make the cost of the general use of comparative tests as a practical measure of school efficiency prohibitive. But, by proper organization, proper training of teachers, and sufficient checking, much systematic work of this character could be done at small cost—work that would be of the greatest value to all concerned.

All other scoring and analysis of mistakes referred to in the following pages was done by a few trained individuals in the office of the Committee, under conditions that permitted close supervision. Such results are essentially uniform throughout.

#### Accuracy of Tabulations

All the general tabulations, referred to below, were made by the Statistical Service Company, of New York City, by means of its tabulating machinery, using punched cards of record. A possible source of error existed in the punching by which the records were transferred from the written record sheets to the special cards used in the tabulations. As, however, two cards were punched for each record, one by each of two operators independently, the two cards for each record being of different colors, it was possible to superpose the cards and hold them to the light. Any failure of the holes in the two cards to "register" was

<sup>1</sup> The seventh grade in all schools.

then evident, so that errors from this source, of which there were many, were thus completely eliminated.

Although the work of the sorting and tabulating machines is mechanically perfect, in the beginning of any series of tabulations on new material, errors, due to misunderstandings upon the part of the operators, are possible. To check the work of tabulation, therefore, two entire schools were tabulated carefully by hand. As a result, it was possible to detect the slightest error in the work and the tables below may be taken as practically perfect tabulations of the data secured from the tests.

### Computations

Throughout the discussions that follow, the exact average is used as a measure of central tendency. The reasons for this are many: (1) The distributions are either normal or slightly skewed, so that average, median, and mode have closely the same values; (2) the average is the measure most readily comprehended by the general public; (3) the results from the mechanical tabulations made the average the measure most easily computed. Where average deviations are given, they have been computed by the approximate method,<sup>1</sup> as have also a few averages that were not included in the general tabulations.

### Effect of Rejecting Certain Records

Of the 33,350 children tested, the records from but 27,171 are included in the tabulations below, as previously explained. Only the scores from record sheets, complete in every detail, were transferred to the punched cards. Of the 4,672 incomplete record sheets, 1,984, or 42 per cent., were lacking in one or more scores, through absence at one or the other of the times when the tests were given; 1,573, or 34 per cent., from failure to follow instructions; and 1,115, or 24 per cent. of the total, from loss of a paper, failure of teacher to record a score, etc. It is evident that the removal of so many thousand records from the total might seriously raise or lower the general averages, if the children were markedly able or inferior in ability. A table, showing in detail the average scores of these children by grades, has been filed with the Committee. It is enough to say here that this source of error has been considered, and that its effect, though insignificant, is to raise slightly the apparent standard of achievement.

### Summary

By way of summary, therefore, it is possible to say that, with full knowledge of the many sources of errors likely to affect the returns, conscientious effort has been made to safeguard the uniformity of condi-

<sup>1</sup> Thorndike, *Mental and Social Measurements*, page 71.

tions and the accuracy of the scoring and tabulations. It is probable that the results reflect accurately the actual abilities of the children in the traits covered by these tests; and that precisely similar results would be obtained if the tests were repeated at the same time, and under the same conditions, a year later. In other words, the data are as reliable as it was practicable to make them, under existing conditions.

## **Section V**

### **Results**

#### **Individual Variation**

##### **Summary and Introduction**

From the foregoing it will be seen that 33,350 children, in 903 classes, in fifty-two New York public schools, have been measured in respect to seventeen distinct, but related, traits, under conditions of rigid uniformity, and the results scored and tabulated with a high degree of accuracy. Turning now to a consideration of the results, the reader should mentally review his conceptions of the meaning of efficiency as applied to arithmetical training in the public school. It should be remembered that children usually enter school at about six years of age, and, from the very first, are subjected to training in number work. At the time the tests were given, the children in the lowest grades tested had had four years of training and were well on toward the end of the work on the four processes. It should be remembered, further, that, in this progress through the school, the children are twice a year passed upon as to growth in ability, and in fitness for the work of the next higher grade. Finally, the reader should marshal his ideas as to the meaning of "promotion" and "grade" from the standpoints of growth and efficiency. Then, and not till then, is he ready to give due consideration to the results obtained.

##### **A Typical Result**

In Table VII are given the distributions of 27,171 individual scores in Test No. 7, both "attempts" and "rights" by whole grades.<sup>1</sup> The total number of children in each grade, and the average score for the grade, are also given.

<sup>1</sup> Throughout the report the word grade, unqualified, will be used to denote the children in both the A and B classes of any year, and includes both girls and boys.

Table VII<sup>1</sup>

Score <sup>4</sup>	NUMBER OF CHILDREN MAKING SCORE <sup>4</sup>									
	4th Grade		5th Grade		6th Grade		7th Grade		8th Grade	
	At-tempted	Right	At-tempted	Right	At-tempted	Right	At-tempted	Right	At-tempted	Right
19	147	1	210	1	288	3	487	14	904	31
18	49	1	165	3	331	10	570	24	914	25
17	59	1	151	6	303	17	413	37	461	86
16	16 <sup>3</sup>	.....	32	6	106	30	114	77	135	107
15	84	.....	344	21	655	62	744	120	758	182
14	187	6	490	34	799	106	650	173	438	251
13	38 <sup>3</sup>	9	93	61	151	134	132	262	86	327
12	528	31	1,212	136	1,370	304	966	367	489	390
11	118	42	169	198	168	358	86	456	40	453
10	1,296	132	1,614	405	997	505	434	553	124	497
9	956	280	677	558	256	647	106	638	30	475
8	175 <sup>3</sup>	405	104	625	39	685	14	500	7	425
7	737	487	245	713	101	620	30	447	9	333
6	412	645	148	738	45	571	10	384	3	312
5	245	661	67	667	29	494	5	254	.....	239
4	189	690	42	524	17	388	3	194	2	152
3	93	654	31	471	7	306	3	142	2	88
2	38	628	19	334	4	203	2	96	.....	71
1	29	723	14	335	4	227	2	43	.....	30
0	.....	.....	.....	.....	.....	.....	.....	.....	.....	28
Total No. .	5,396	5,396	5,836	5,836	5,670	5,670	4,771	4,771	4,502	4,502
Average Score..	8.8	4.2	10.9	5.8	12.5	7.0	14.0	8.5	15.7	10.1

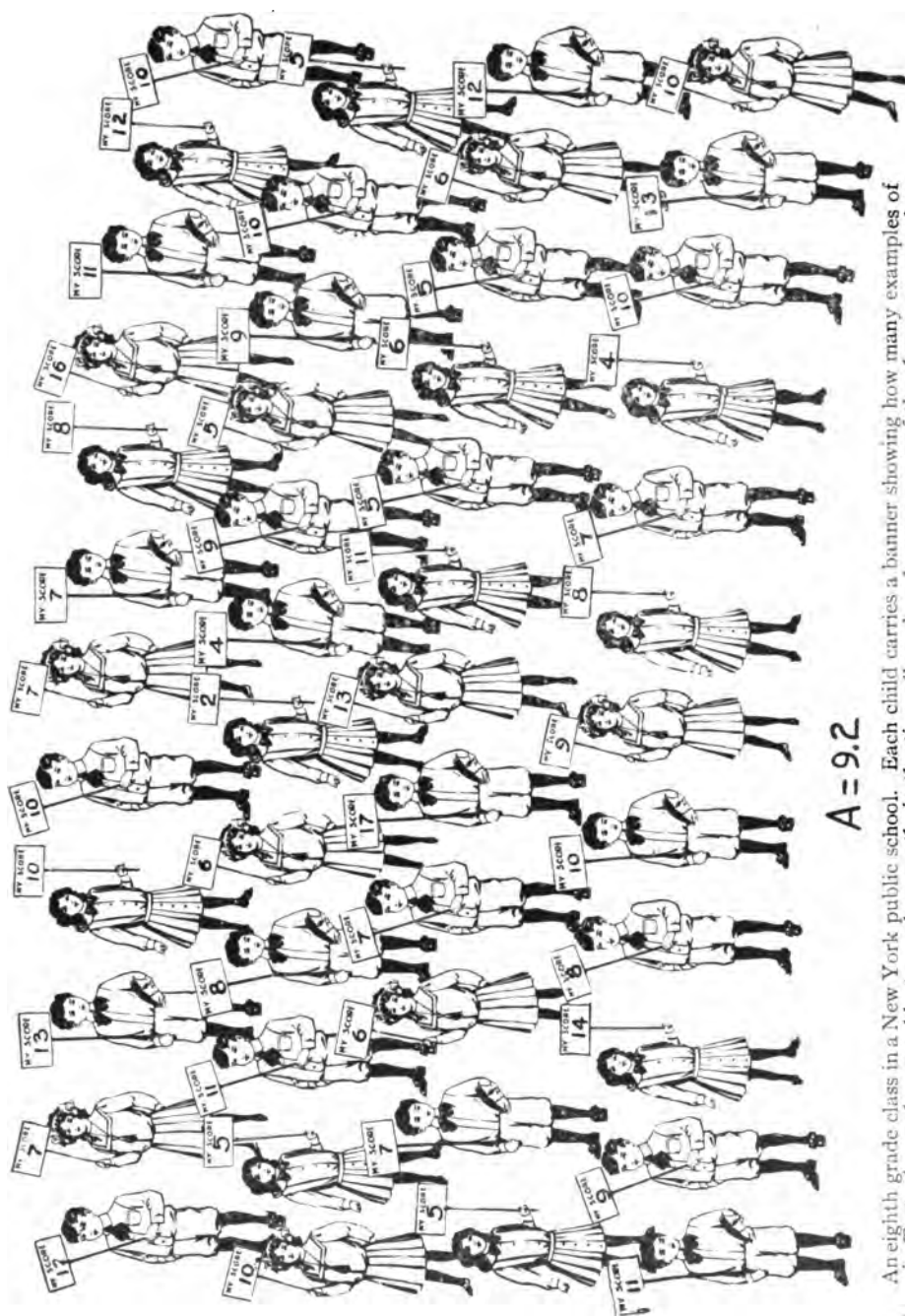
Score <sup>4</sup>	NUMBER OF CHILDREN MAKING SCORE <sup>4</sup>							
	9th Grade <sup>2</sup>		10th Grade <sup>2</sup>		11th Grade <sup>2</sup>		12th Grade <sup>2</sup>	
	Attempted	Right	Attempted	Right	Attempted	Right	Attempted	Right
19	64	4	49	3	37	3	24	.....
18	3	.....	1	2	2	.....	.....	1
17	115	9	79	7	45	4	36	1
16	49	13	22	12	12	6	11	6
15	21	20	14	14	8	12	3	3
14	79	32	40	23	18	9	19	10
13	43	47	22	26	13	16	10	12
12	6	50	6	20	2	15	1	17
11	42	46	16	35	18	9	13	17
10	4	53	.....	33	.....	12	.....	7
9	12	36	7	27	20	27	2	17
8	1	50	1	22	3	19	.....	8
7	1	20	.....	10	.....	17	.....	6
6	.....	24	.....	11	.....	14	1	6
5	.....	16	.....	10	1	8	.....	5
4	.....	9	.....	.....	.....	4	.....	2
3	.....	2	.....	1	.....	4	.....	.....
2	.....	6	.....	1	.....	.....	.....	1
1	.....	2	.....	.....	.....	.....	.....	1
0	.....	1	.....	.....	.....	.....	.....	.....
Total No. .	440	440	257	257	179	179	120	120
Average Score..	15.7	10.9	16.1	11.5	15.4	10.5	16.0	11.0

<sup>1</sup> Distribution by grades of 27,171 individual scores in Test 7, number of abstract examples attempted in twelve minutes, and number right; also average score for the grade. The table shows that, of 5,396 fourth grade children, 147 attempted nineteen examples; 49 attempted seventeen examples; 59, sixteen examples, etc. One had nineteen right; one, seventeen right, etc. The average score for the grade is 8.8 examples attempted and 4.2 examples right.

<sup>2</sup> The high school children were examined in their "official classes" which approximate the grades given.

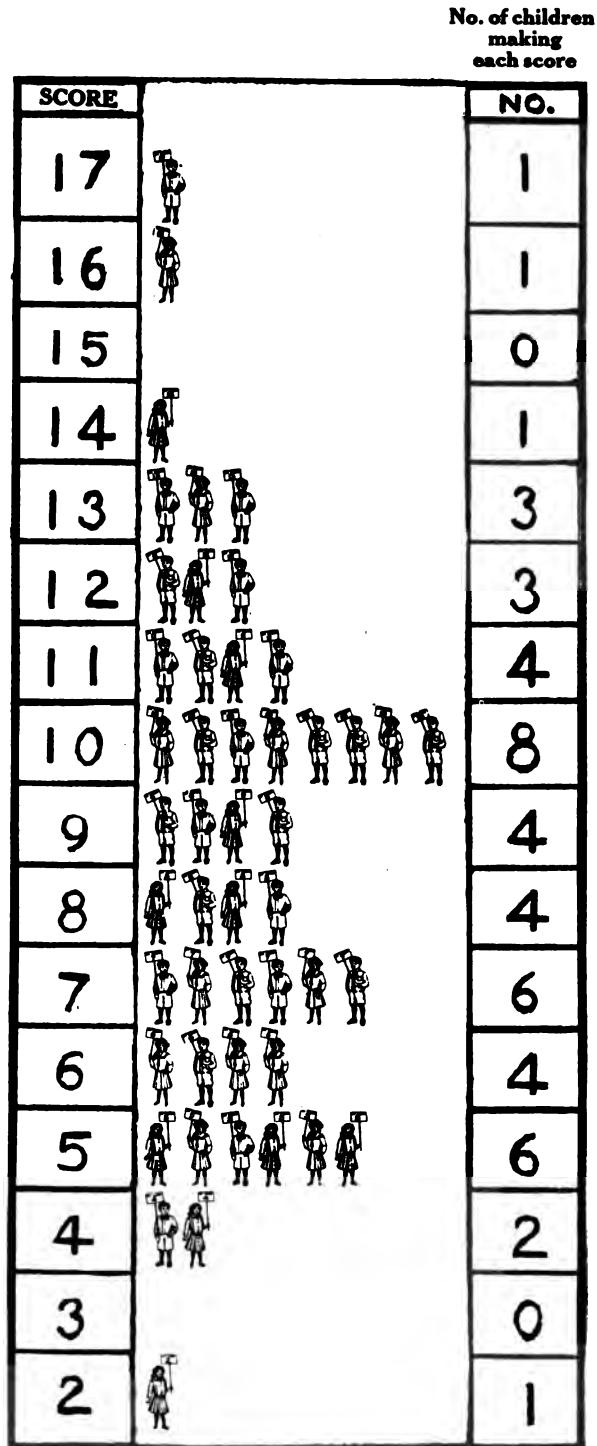
<sup>3</sup> For cause of irregularities in the distribution of scores for examples attempted, see page 23.

<sup>4</sup> For meaning of word score, see page 17.



An eighth grade class in a New York public school. Each child carries a banner showing how many examples of those in Test 7 he or she was able to work correctly in the time allowed. Average score of the class 9.2 examples.

Fig. XII



**Fig. XIII**

Same class as that shown in previous figure, but arranged to show the wide range of ability found in a single grade. One child could get 17 examples right in the same time and under the same conditions that another child could get but 2 right. For such a class, the average gives a wrong impression. Note how few average children there are.



It is customary in many educational discussions to work with averages, but that custom will not be followed here. For the student of education the conventional forms in which the results are given will present no difficulties, but the general reader may need to master a few fundamental ideas in order to understand readily the various tables.

In figure XII are shown the children of a certain 8th grade class in one of the New York City schools. Each child bears a banner showing its score in Test 7, Rights. The average score of the group is 9.2 examples. In dealing with a large number of individuals, however, it is much more convenient to group the scores as shown in figure XIII. Such a grouping is called a distribution, and the number of children in each group is shown in a table by figures opposite the proper score. Thus the table at the right of the figure represents the conditions shown in this and the previous figure. The reader should study these diagrams until he is able to transform, in his inner mental vision, the abstract numbers of a table into living children, until he appreciates the fact that in Table VII and every similar table throughout the report the living army of 27,121 children examined is marshalled in squads, companies and regiments, each under his own grade, each opposite his own score.

The advantage of such distributions is that all the facts are presented: the reader is not deceived. For instance, if the conventional average score were used, the reader would be told that the average score of the 5,396 4th grade children whose distribution is given in the first column of Table VII, was 8.8 examples attempted, and 4.2 examples right. About 2,000 children of the group did actually make within one example of these scores, but that is not the whole significance of the data. The statement is sometimes made that the average child does not exist. This is not true—for there are more average children than children of any other one type—but there is a measure of truth in it which the distributions bring out plainly. The statement really should be that there are more children who differ from the average than there are of average ability. Thus in the table the largest group in the distribution of the 4th grade scores, attempts, is the group of 1,296 children whose score was 9 examples attempted, or just a little more than the average. The second largest group of 956 children have a score of 8 examples attempted, or a little less than the average. These two groups are the children of "average" ability and there are more of them than of any other *one* kind.

On the other hand this fact is less than one-half the truth numerically, and very much *less* than one-half the significance of the whole truth, for the remaining 3,000 children have scores which are not average scores at all. They range from the small group of 29 who attempted no examples at all to the group of 147 who tried all 19 examples. For education the important fact is, not that 2,000 of the children in the 4th grade are of average ability, but that 3,000 *are not* and should have very different treatment from those that are. From the

standpoint of efficiency, the significance of the data is not that the average score of 4th grade children is 8.8 examples attempted, but that in the 4th grade are found good-sized groups of children of every level of ability from those who could do none of the examples at all, to those who could do all the examples in a test so long that but 1 per cent. of the high school children could finish all of it correctly in the time allowed.

The reader should study this first table thoroughly. It points out plainly the facts of largest significance both for education generally and for the local situation. It is the distributions of the individual scores that are startlingly—yes, sensationally—significant. The distributions are very wide; the individual differences within a grade are very great. In other words, each grade contains not many children of the same, or nearly the same, ability, but children of widely differing abilities. Almost the entire range of the scale is needed to express even the abilities to be found in a single grade. As measured by the grade averages, there is progress from grade to grade, but the amount of the progress is insignificant, when compared with the wide range of ability within a grade. For instance, the average increase in speed from the fourth to the eighth grade is 1.2 examples per grade, but the range of variation within each grade is nineteen examples, or sixteen times as much. To include the half of the fourth grade, where scores differ least from the average, a range of 3.5 examples is needed, or three grades. From the point of view of accuracy, the figures are relatively the same. To make plain the extent to which one grade overlaps another, if every child in the sixth grade were, when possible, mated with a child in the seventh grade, whose score was the same as its own, seventy-nine children out of every hundred in each grade would be mated on the basis of scores in examples attempted, and eighty-one out of every hundred on the basis of scores in examples right. That is to say, 80 per cent. of the children, in either grade, could be replaced by an equal number of children, from the other grade, without changing the ability of the grade in this test in the slightest.

The facts for the overlapping of these grades are shown on the basis of scores in examples right in Fig. XIV. For the overlapping of 4th and 8th grades, the per cents. would be 26 per cent. and 35 per cent., respectively, and the condition is also shown in the figure.

Or, suppose a business man hires a graduate of the grammar school. What are his chances of securing efficient help, so far as ability in the fundamentals is concerned? Twenty-one boys per thousand will be able to work examples like those of Test 7, at speed of 1.5 examples per minute, or better. If accuracy is considered, the number will be reduced to thirteen per thousand. At the rate of one example per minute, 873 boys could qualify in speed, 336 in accuracy. If a minute and a half were allowed for each example right, the number would be increased to 773, but even at two minutes for each example right, there would still be 150 boys per thousand whose work would be unsatisfactory. If one example per

Number of Children  
Making Each Score.

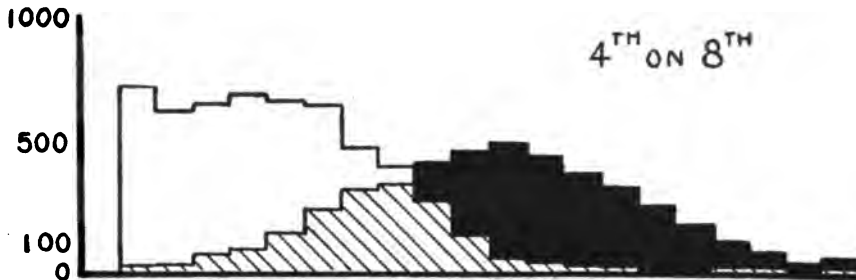
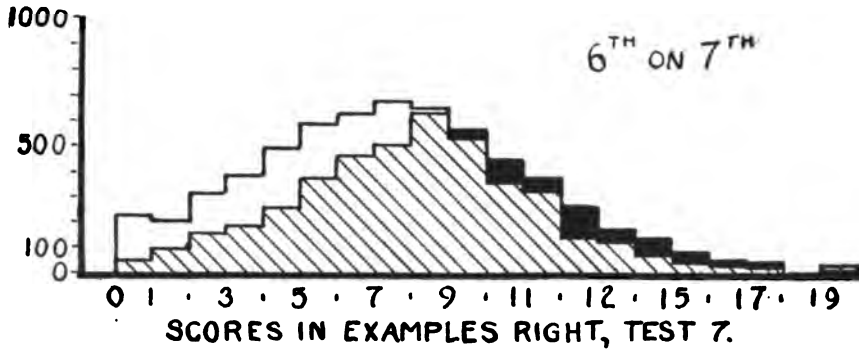


Fig. XIV

Upper part shows the overlapping of 6th and 7th grades, the lower of 4th and 8th grades, on basis of scores in abstract examples right. The shaded part in each figure shows the number of children in one grade, and their distribution along the scale, whose scores could be matched from the scores of the children in the other grade—in other words, the part common to the two grades. The black is the part of the upper grade that exceeds the lower; the white the part of the lower grade that falls below the upper. The average per cent. of overlapping represented by the shaded portion is 81 per cent. for the upper figure, and 35 per cent. for the lower.

minute be accepted as the rate necessary for efficient service, nine boys per thousand, of those in the fourth grade, will be able to meet the requirements as to speed and just not any in accuracy, so that the extra four years' training, which the eighth grade boys have received, has enabled 86 per cent. of the class to qualify in speed, and but 34 per cent. in accuracy.

#### Overlapping of Grades

However, no attempt to portray, by such limited comparisons, the significance of the data presented in the table can be successful. The real meaning is that, so far as any individual child is concerned, to say that he has completed the course in arithmetic in the public schools

is to convey *no* information as to his ability, in even the simplest work. He may be almost an absolute incompetent, so far as practical work is concerned, or he may have acquired a degree of skill that would be adequate for any situation in which he is likely to find himself. If he does "as well as the average," his ability will be no better than the upper 5 per cent. of the fourth grade. As a whole, therefore, Table VII more than justifies the severest criticism of the efficiency of the training in arithmetic afforded by the public school that has yet been made by the "man on the street."

The reader should keep clearly in mind the fact that this investigation has nothing whatever to say upon the question of whether, after all, arithmetic should be taught in the public schools. That is an entirely different question, which the public, through the press, school boards, and other agencies, has repeatedly decided in the affirmative. The sole question at issue is the degree to which the teaching is efficient. To what degree does a public school education, through the grammar grades, insure to those who complete it mastery of the simplest abilities in arithmetic? The answer, in the light of Table VII, must be that the efficiency of school work, as conducted at present, is very low.

### Objections Answered

The first reaction of the average school man, to the above statements, will be to attack the validity of the results. It is for this reason that the tests and the testing have been described in so much detail above.

Table VIII—Summary Test 1<sup>1</sup>

Score	NUMBER OF CHILDREN MAKING EACH SCORE								
	4th Grade	5th Grade	6th Grade	7th Grade	8th Grade	9th Grade	10th Grade	11th Grade	12th Grade
125	.....	4	8	7	23	.....	2	.....	.....
115	.....	4	6	7	35	1	.....	.....	1
105	7	10	35	32	122	18	9	8	8
95	4	22	53	100	234	33	22	18	13
85	32	118	288	472	767	73	56	43	24
75	68	262	595	796	1,024	106	55	41	33
65	339	1,004	1,505	1,441	1,319	136	70	44	22
55	819	1,583	1,626	1,176	703	52	28	20	13
45	1,928	1,870	1,182	602	239	18	14	4	5
35	1,657	824	313	126	32	3	.....	1	.....
20 to 29, etc	498	125	53	10	3	.....	1	.....	1
10 to 19	39	8	5	1	1	.....	.....	.....	.....
0 to 9	5	2	1	1	.....	.....	.....	.....	.....
Total No. ....	5,396	5,836	5,670	4,771	4,502	440	257	179	120
Average Score	41.9	50.2	56.9	62.2	69.5	71.6	71.7	73.9	74.2

<sup>1</sup> Distribution by grades of 27,171 individual scores in Test 1, addition.

Table IX<sup>1</sup>—Summary Test 2

SCORE	NUMBER OF CHILDREN MAKING EACH SCORE								
	4th Grade	5th Grade	6th Grade	7th Grade	8th Grade	9th Grade	10th Grade	11th Grade	12th Grade
125	1	.....	1	2	3	.....	.....	.....	.....
115	.....	.....	.....	.....	4	.....	1	.....	.....
105	.....	3	1	5	17	1	1	.....	.....
95	.....	4	3	5	20	3	3	1	.....
85	12	19	31	34	117	9	7	9	4
75	15	27	46	92	215	26	22	17	12
65	44	168	319	465	827	80	61	39	19
55	141	485	854	1,124	1,407	143	84	55	40
45	746	1,677	1,995	1,820	1,394	137	56	42	31
35	1,601	1,875	1,634	947	424	36	20	15	13
25	2,162	1,364	718	262	71	5	2	1	1
15	606	199	63	13	3	.....	.....	.....	.....
5	68	15	5	2	.....	.....	.....	.....	.....
Total No. ....	5,396	5,836	5,670	4,771	4,502	440	257	179	120
Average Score	29.5	36.8	41.0	45.8	52.2	52.2	55.3	55.2	54.1

<sup>1</sup> Distribution by grades of 27,171 individual scores in Test 2, subtraction.Table X<sup>1</sup>—Summary Test 3

SCORE	NUMBER OF CHILDREN MAKING EACH SCORE								
	4th Grade	5th Grade	6th Grade	7th Grade	8th Grade	9th Grade	10th Grade	11th Grade	12th Grade
125	1	3	1	2	1	.....	.....	.....	.....
115	.....	2	.....	1	3	.....	.....	.....	.....
105	5	5	7	8	23	.....	1	.....	.....
95	7	2	6	10	13	.....	.....	.....	.....
85	14	24	37	33	77	5	2	1	.....
75	15	24	36	48	115	14	2	3	1
65	64	161	271	298	421	47	36	29	15
55	130	388	543	597	830	96	58	47	29
45	619	1,294	1,633	1,617	1,705	178	106	73	47
35	1,444	2,121	1,996	1,570	1,064	83	40	20	25
25	2,332	1,572	1,035	537	241	17	12	5	3
15	694	218	94	46	8	.....	.....	1	.....
5	71	22	11	4	1	.....	.....	.....	.....
Total No. ....	5,396	5,836	5,670	4,771	4,502	440	257	179	120
Average Score	28.7	35.0	38.3	40.9	45.8	46.5	46.8	48.6	46.6

<sup>1</sup> Distribution by grades of 27,171 individual scores in Test 3, multiplication.

Table XI<sup>1</sup>—Summary Test 4

SCORE	NUMBER OF CHILDREN MAKING EACH SCORE								
	4th Grade	5th Grade	6th Grade	7th Grade	8th Grade	9th Grade	10th Grade	11th Grade	12th Grade
125	.....	.....	1	1	6	.....	.....	.....	.....
115	.....	.....	1	.....	1	.....	.....	.....	.....
105	2	2	6	5	10	1	.....	.....	.....
95	3	5	2	3	21	1	1	1	1
85	7	14	29	35	124	16	9	7	6
75	11	23	52	76	189	22	17	10	14
65	34	135	279	475	780	93	52	45	21
55	75	336	645	880	1,193	135	74	55	36
45	444	1,434	1,989	1,938	1,573	126	83	48	30
35	1,264	2,088	1,732	1,014	504	35	14	11	11
25	2,419	1,505	834	320	93	11	6	2	.....
15	997	263	92	20	6	.....	1	.....	1
5	140	31	8	4	2	.....	.....	.....	.....
Total No. ....	5,396	5,836	5,670	4,771	4,502	440	257	179	120
Average Score	26.6	34.7	39.7	44.6	50.9	52.5	52.7	54.2	55.0

<sup>1</sup> Distribution by grades of 27,171 individual scores in Test 4, division.Table XII<sup>1</sup>—Summary Test 5

SCORE	NUMBER OF CHILDREN MAKING EACH SCORE								
	4th Grade	5th Grade	6th Grade	7th Grade	8th Grade	9th Grade	10th Grade	11th Grade	12th Grade
205	.....	.....	.....	25	.....	1	.....	.....	.....
195	.....	.....	.....	.....	.....	.....	.....	.....	.....
185	.....	.....	1	.....	.....	.....	1	.....	.....
175	.....	2	2	.....	.....	.....	.....	.....	.....
165	11	37	47	49	82	1	3	3	.....
155	4	10	19	20	30	2	.....	.....	1
145	13	17	36	43	128	4	1	6	2
135	16	37	64	140	228	10	14	13	15
125	77	223	359	543	793	44	32	44	21
115	71	256	494	630	789	72	50	28	20
105	311	779	1,066	1,143	1,042	95	63	43	21
95	622	1,131	1,256	945	743	99	58	21	16
85	1,504	1,616	1,274	736	431	64	27	12	14
75	1,007	800	536	272	113	22	4	3	4
65	857	458	291	103	58	17	2	2	2
55	456	237	107	43	19	4	.....	1	.....
45	298	124	57	35	21	2	1	2	1
35	57	39	18	22	8	4	1	.....	2
25	47	39	22	13	10	.....	.....	.....	1
15	36	24	12	2	4	.....	.....	1	.....
5	9	7	9	7	3	1	.....	.....	.....
Total No. ....	5,396	5,836	5,670	4,771	4,502	442	257	179	120
Average Score	75.35	85.5	92.5	100.	106.8	98.8	104.5	109.4	105.6

<sup>1</sup> Distribution by grades of 27,171 individual scores in Test 5, copying figures.

Table XIII<sup>1</sup>—Summary Test 6

SCORE	NUMBER OF CHILDREN MAKING EACH SCORE									
	4th Grade		5th Grade		6th Grade		7th Grade		8th Grade	
	At-tempted	Right	At-tempted	Right	At-tempted	Right	At-tempted	Right	At-tempted	Right
16	8	....	19	....	18	....	8	1	5	....
15	5	....	3	....	2	....	3	....	2	....
14	2	....	11	....	6	....	3	....	6	....
13	5	....	12	....	17	1	8	....	7	....
12	9	....	20	....	11	....	18	3	14	3
11	13	....	31	....	41	2	29	3	27	1
10	21	....	36	....	63	3	53	12	67	13
9	25	....	73	1	91	7	109	17	148	35
8	51	4	106	7	190	33	204	58	292	119
7	91	4	204	21	338	64	366	111	531	248
6	196	17	452	71	730	208	855	308	1,029	556
5	429	65	875	179	1,179	456	1,063	582	1,073	755
4	791	167	1,155	418	1,191	676	993	821	796	857
3	1,309	415	1,431	858	1,141	1,054	741	990	376	831
2	1,456	1,298	1,014	1,629	536	1,414	281	998	111	628
1	869	1,972	340	1,778	105	1,254	34	645	15	324
0	116	1,454	54	874	11	498	3	222	3	132
Total No....	5,396	5,396	5,836	5,836	5,670	5,670	4,771	4,771	4,502	4,502
Average Score....	3.5	1.8	4.4	2.3	5.1	3.0	5.5	3.7	6.0	4.4

SCORE	NUMBER OF CHILDREN MAKING EACH SCORE							
	9th Grade		10th Grade		11th Grade		12th Grade	
	Attempted	Right	Attempted	Right	Attempted	Right	Attempted	Right
16	....	....	....	....	....	....	....	....
15	....	....	....	....	....	....	....	....
14	....	....	1	....	....	....	....	....
13	1	....	....	....	....	....	....	....
12	....	....	1	....	....	....	....	....
11	6	....	....	....	....	....	....	....
10	13	5	4	1	3	2	2	2
9	12	6	11	8	6	3	6	2
8	37	14	15	11	17	5	18	10
7	70	43	32	19	28	15	24	18
6	96	70	63	44	51	42	37	23
5	102	93	55	54	34	31	17	21
4	62	78	44	47	22	24	11	19
3	31	62	26	37	15	23	4	12
2	8	50	5	24	3	21	1	8
1	2	13	....	10	....	11	....	5
0	....	6	....	2	....	2	....	....
Total No....	440	440	257	257	179	179	120	120
Average Score.....	6.1	5.1	6.0	5.1	6.2	5.1	6.7	5.7

<sup>1</sup> Distribution by grades of 27,171 individual scores in Test 6, speed reasoning, attempts and rights.

Table XIV<sup>1</sup>—Summary Test 8

SCORE	NUMBER OF CHILDREN MAKING EACH SCORE									
	4th Grade		5th Grade		6th Grade		7th Grade		8th Grade	
	At-tempted	Right	At-tempted	Right	At-tempted	Right	At-tempted	Right	At-tempted	Right
8	134	....	146	....	74	....	26	....	29	....
7	110	....	78	2	51	1	44	....	55	5
6	166	....	149	2	121	3	114	4	178	14
5	316	1	329	6	295	7	361	7	432	45
4	611	1	681	9	767	41	781	95	871	199
3	977	8	1,198	62	1,205	218	1,092	365	1,082	625
2	1,320	90	1,647	400	1,815	849	1,544	1,082	1,213	1,306
1	1,415	617	1,346	1,490	1,221	2,000	746	1,858	603	1,611
0	347	4,679	262	3,865	121	2,551	63	1,360	39	697
Total No....	5,396	5,396	5,836	5,836	5,670	5,670	4,771	4,771	4,502	4,502
Average Score....	3.1	.7	3.1	.9	3.1	1.3	3.3	1.7	3.5	2.1

SCORE	NUMBER OF CHILDREN MAKING EACH SCORE							
	9th Grade		10th Grade		11th Grade		12th Grade	
	Attempted	Right	Attempted	Right	Attempted	Right	Attempted	Right
8	3	....	....	....	....	....	....	....
7	7	1	3	....	5	....	3	....
6	19	1	5	1	8	4	5	1
5	39	11	22	7	17	11	19	9
4	90	37	43	24	31	15	26	9
3	90	82	68	48	39	28	19	25
2	139	134	77	86	61	61	37	35
1	50	139	38	75	18	52	11	35
0	3	35	1	16	....	8	....	6
Total No....	440	440	257	257	179	179	120	120
Average Score....	3.6	2.5	3.5	2.6	3.6	2.7	3.8	2.7

<sup>1</sup> Distribution by grades of 27,171 individual scores in Test 8, reasoning.



Table XV—Relation Between Age and Grade of the Children Examined

AGE	NUMBER OF CHILDREN				
	4th Grade	5th Grade	6th Grade	7th Grade	8th Grade
Under 7	2	.....	.....	.....	.....
7	14	1	.....	.....	.....
8	347	15	.....	.....	.....
9	1,774	256	20	.....	.....
10	1,569	1,673	319	14	3
11	876	1,797	1,528	294	26
12	421	1,137	1,814	1,371	286
13	184	567	1,169	1,684	1,398
14	55	255	578	991	1,641
15	23	62	140	315	858
16	4	8	26	46	226
17	.....	1	1	8	25
18	.....	3	2	.....	4
19 or over, and no age given.....	127	61	73	48	35
Total No.....	5,396	5,836	5,670	4,771	4,502
Average Age.....	10.5	11.3	12.4	13.9	14.6

Table XVI—Grade 8A  
Sample Distributions

Test 3			Test 5			Test 6				Test 7						
No. of Boys Making Each Score	Score	No. of Girls Making Each Score	No. of Boys Making Each Score	Score	No. of Girls Making Each Score	Attempts		Score	Rights		Score	Attempts		Score	Rights	
						No. of Boys Making Each Score	No. of Girls Making Each Score		No. of Boys Making Each Score	No. of Girls Making Each Score		No. of Boys Making Each Score	No. of Girls Making Each Score		No. of Boys Making Each Score	No. of Girls Making Each Score
.....	.....	.....	9	Over 155	21	.....	.....	.....	.....	.....	18	192	256	18	1	9
.....	.....	.....	4	155	4	.....	.....	.....	.....	.....	17	179	231	17	10	23
.....	.....	.....	23	145	23	.....	.....	.....	.....	.....	16	122	122	16	16	28
.....	.....	.....	44	135	60	.....	.....	.....	.....	.....	15	30	36	15	27	41
.....	.....	.....	177	125	213	.....	.....	.....	.....	.....	14	189	190	14	33	69
.....	.....	.....	198	115	200	.....	.....	.....	.....	.....	13	124	113	13	61	81
.....	.....	.....	261	105	263	.....	.....	.....	.....	.....	12	29	18	12	80	91
3	105	9	200	95	182	.....	.....	.....	.....	.....	11	173	119	11	101	104
3	95	2	135	85	101	.....	.....	.....	.....	.....	10	16	9	10	115	122
22	85	11	135	75	31	.....	.....	.....	.....	.....	9	48	31	9	120	120
31	75	20	35	75	14	.....	.....	.....	.....	.....	8	19	4	8	117	120
86	65	108	25	65	7	.....	.....	.....	.....	.....	7	2	.....	7	99	81
156	55	237	4	55	129	.....	.....	.....	.....	.....	6	5	.....	6	118	76
421	45	436	2	45	249	.....	.....	.....	.....	.....	5	5	.....	5	83	67
318	35	254	6	35	283	.....	.....	.....	.....	.....	4	2	.....	4	53	42
86	25	269	4	25	237	.....	.....	.....	.....	.....	3	.....	.....	3	40	22
4	15	1	1	15	101	.....	.....	.....	.....	.....	2	.....	.....	2	27	26
.....	5	1	1	5	42	.....	.....	.....	.....	.....	1	.....	.....	1	17	5
.....	.....	.....	.....	.....	6	.....	.....	.....	.....	.....	0	.....	.....	0	12	5
.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....		.....	.....			
1,130	Total number	1,132	1,130	Total number	1,132	1,130	1,132	Total number	1,132	1,130	Total number	1,130	1,132	Total number	1,130	1,132
43.9	Average Scores	45.9	103.6	Average Scores	106.6	6.0	5.8	Average Scores	4.5	3.9	Average Scores	15.0	15.8	Average Scores	9.0	10.0

The reader who has not satisfied himself that the results, if inaccurate at all, are better than the actual conditions in the schools, should read again the checks and precautions taken to insure accurate and reliable data.

The second reaction will be to demand further proof. Accordingly, in Tables VIII to XIV are given the distributions for each of the other tests. For tests 1, 2, 3, 4, and 5, in which the number of answers written were large, it was more convenient to distribute the scores in groups of tens. Thus, all the scores ranging from 0 to 9 were put in one group, all those in the teens in a second group, all those in the twenties in a third, and so on. The average of the scores in a group would of course be the midpoint of a group, and in the tables each score is represented by its midpoint. Thus, 125 means a group of scores ranging from 120 to 129.

It will be noted that the results are similar for every trait. In Table XV are given the data for the relation between age and grade, to show how completely all standards have departed from our schools. The results resemble, in many features, those of the other tables. Then, lest the extent of the overlapping of grades be thought due to the combining in one column of the distributions of boys and girls, as well as of A and B classes, in Table XVI are given, for the 8A grade, the data of Table VII (Test 7), and of other tables, in the form of the separate distributions by sex.<sup>1</sup> None of these alternative forms, however, change the general result in any way. The great individual variation persists, through these and through all the other and similar tables, that constitute the tabulations in full.

The third reaction will be to demand why, if such conditions exist, they are not known and remedied. The answer must be that, whenever the individual scores have been given, similar conditions have been shown by the results of every published comparative test with which the writer is familiar. Rice and Stone both comment on the great individual variations, and similar tests in other subjects—handwriting, spelling, and English—prove that like conditions exist throughout school work.

These facts have been ignored by school men generally, because they constantly deceive themselves by faulty methods of examination, scoring, and tabulation. For one thing, aims are not clearly defined in education. Compare the vague general "to teach the multiplication tables," with the definite objective aim, "to so teach the multiplication tables that a child can write forty answers per minute in Test 3, under standard conditions." If even so relatively simple a thing as ability to work with whole numbers is a complex, what must be said of other forms of school activities? Further, the ordinary examination is an entirely inadequate measure of educational product. The units of which it is composed are chosen afresh each time a measurement is made, and are varied from

<sup>1</sup> Tabulations for all tests have been completed in similar detail and have been filed with the Committee on School Inquiry.

grade to grade. Time allowances, and other vital factors, are also variable, and, in the absence of definite units, a system of scoring is adopted in which subjective factors play the major part.<sup>1</sup> To crown all, in judgments of class progress, individual scores are replaced by deceptive grade averages, which effectually conceal the facts of individual variation. Galton, Thorndike, and a host of others have measured and discussed the importance of individual differences; lack of educational units and educational measurements has, heretofore, prevented the same facts being brought out in connection with school work. In the following paragraphs of this section the writer proposes to show that the factor of individual differences is the basic factor in all school work; that methods which do not recognize this factor are wasteful in the extreme; that such differences in methods, environment, school equipment, courses of study, training of teachers, etc., as are commonly found in the public schools of this country, produce differences in product which are *insignificant* from the standpoint of efficiency, in comparison with those differences which are due to the operation of the inherent differences of the children themselves; that, in basing school work upon the measured need of the individual, and in so modifying our present system of group instruction as to provide for supplementary individual instruction, lies the one hope for any radical improvement in the general efficiency.

#### Overlapping of Grades

If the overlapping of grades shown in previous tables is expressed in slightly different form, the data can be made to yield a generalization of some importance. For instance, in Table XVII, the number (Part A), and the per cent. (Part B), of each class membership which falls below the average of a lower grade, or exceeds the average of its own, or a higher grade, are shown. These are based upon the results of

**Table XVII—Overlapping of Grades**  
Based on Scores in Test 3, Multiplication. Table X, Page 53  
Part A

Grade	No. of Children in Grade	Number of children in each grade whose scores exceed (+) or fall below (—).					
		The Average Score of the 4th Grade (28.7)	The Average Score of the 5th Grade (35.0)	The Average Score of the 6th Grade (38.3)	The Average Score of the 7th Grade (40.9)	The Average Score of the 8th Grade (45.8)	The Average Score of the High School Classes (47.0)
4	5,396	+2,299	+1,433	+999	+731	+422	+360
5	5,836	—1,655	+2,751	+2,115	+1,644	+997	+868
6	5,670	—1,037	—2,138	+2,734	+2,207	+1,391	+1,228
7	4,771	—533	—1,372	—1,843	+2,291	+1,482	+1,320
8	4,502	—226	—782	—1,101	—1,485	+1,985	+1,814
H. S.	996	—34	—122	—172	—246	—448	+467
.....	27,171	.....	.....	.....	.....	.....	.....

<sup>1</sup> See School Review, Vol. XX, No. 7, September, 1912.

## Part B

**Derived from Part A.**

Grade	No. of Children in Grade	Per cent. of the children in each grade whose scores exceed (+) or fall below (—)					
		The Average Score of the 4th Grade	The Average Score of the 5th Grade	The Average Score of the 6th Grade	The Average Score of the 7th Grade	The Average Score of the 8th Grade	The Average Score of the High School Classes
		(28.7)	(35.0)	(38.3)	(40.9)	(45.8)	(47.0)
4	5,396	+43%	+27%	+19%	+14%	+8%	+7%
5	5,836	—28	+47	+36	+28	+17	+15
6	5,670	—18	—38	+48	+38	+25	+22
7	4,771	—11	—29	—39	+48	+31	+28
8	4,502	—5	—17	—24	—33	+44	+40
H. S.	996	—3	—12	—17	—25	—45	+47
.....	27,171	.....	.....	.....	.....	.....	.....

The bold face number is, for each grade, the per cent. of the grade membership that exceeds the average of the grade.

### Part C

Grade	Number of Children	Previous table rearranged by shifting each horizontal row enough to bring the bold face numbers into a vertical column. The average of this column then represents the per cent. of any grade membership that exceeds the average of that grade.										
4	5,396	..	..	..	..	..	<b>43</b>	27	19	14	8	7
5	5,838	..	..	..	..	28	<b>47</b>	36	28	17	15	..
6	5,670	..	..	..	18	38	<b>48</b>	38	25	22	..	..
7	4,771	..	..	11	20	39	<b>48</b>	31	28	..	..	..
8	4,502	..	5	17	24	33	<b>44</b>	40	..	..	..	..
H. S.	996	3	12	17	25	45	<b>47</b>	..	..	..	..	..
	27,171											
Generalized Values (Approximate Averages) ...		5	10	15	25	35	45	35	25	15	10	5

The table shows that in general 45 per cent. of the membership of any grade exceeds the average of that grade, 35 per cent. of the membership of the grade exceeds the average of the next higher grade, 25 per cent. of the second higher grade, and so on. Also, that 35 per cent. of the membership of any grade falls below the average of the next lower grade, etc.

## Part D

[illegible]

Table X above, ability in the multiplication tables. For example, there were 5,670 sixth grade children. Of these 1,037, or 18 per cent., had a score lower than 28.7, the average of the fourth grade; 38 per cent. fell below 35.0, the average score of the fifth grade; 48 per cent. exceeded 38.3, the average score of the 6th grade; 38 per cent. exceeded the average of the seventh grade, and so on.

In Part B of the Table, the boldface number in each horizontal row is the per cent. of that grade's membership that exceeds the average of the grade. If the table is rearranged by shifting each horizontal row of figures enough to bring into one vertical column the boldface numbers, as shown in Part C of the table, the figures in each vertical column are measures of a single relation; thus, the central column shows the per cent. of each grade's membership that exceeds the average of the grade. As the per cents. in each vertical column are closely the same, the statements of relation can be made in the form of generalizations; thus, that 45 per cent. of the grade membership of *any* grade will exceed the average score of that grade; that 35 per cent. of the grade membership will exceed the average score of the next higher grade; also, that 35 per cent. of the grade membership will fall below the average of the next lower grade, and so on.

It will be noted that the values in each column are remarkably constant. The generalization to be made from this is that the amount of overlapping of the grades is constant, and is, therefore, due to the one factor that is common to all the schools and grades—that is, to the inherent differences in children in their ability to respond to training in the multiplication tables. The variations in methods, teachers, amount of time, and attention given to arithmetic, even in the New York schools, are sufficient to warrant the conclusion that human nature is the only factor common to all of them, but the inference becomes many times more certain when the results from the New York schools are compared with a table (Part D), made in precisely the same way, but from the data secured in the coöperative determination of standard scores.

In that investigation results were contributed by public schools and private schools, by city schools and county schools, by schools in states as widely separated as New Hampshire, and Kansas, Michigan, and Virginia, and, through the kindness of Professor J. A. Green, of Sheffield, by three schools in England. *In every class and school examined* the same conditions of variability were found, and a comparison of the per cents. of overlapping with those for the New York schools will show the constancy of the effect. New York schools are, therefore, neither more nor less efficient than schools in other cities.<sup>1</sup>

In all, however, the efficiency is *low*, so low that, for any large group

<sup>1</sup> From the point of view of attention paid to the subject, amount of teaching effort, high scores, etc., the New York schools, in the abstract work at least (see p. 78), compare very favorably with the best of the 100 odd other schools in which the Courtis Tests have been given.

of children in a single grade, 45 per cent. will have higher scores in a test of the multiplication tables than the average of the grade; approximately 35 per cent. will exceed the average of the next higher grade; another 35 per cent. fall below the average of the next lower grade; 25 per cent. will exceed the average of the second higher grade; another 25 per cent. will fall below the average of the second lower grade, and so on.

And this is, in general, true without respect to either city, or grade, or kind of school. Similar tables could be prepared for each of the other traits measured; the per cents. would vary with each test, but the essential facts would remain the same.

The reader should be very careful not to miss the true significance of this generalization. It does not mean at all that methods, training of teachers, etc., do not affect educational products; it does mean that, whether the average of the class be high or low, the variability within the class will in general be the same. A good teacher using the best methods will give her class greater opportunities for growth than a poor teacher using poor methods. The average in one case will be higher than in the other, but in each class the range of variation within the class will so *greatly exceed the difference* between the averages of the two classes as to make the gain due to teacher or method of small account. In both classes there will be children who have made great gains during the year. In both classes there will be children who have gained so little that they are practically where they started in respect to any ability. In both classes the range of variation between these two extremes will amount to many times the difference between the average scores of any two successive grades. Both classes are equally inefficient, for whether the individual making the largest, the smallest, or the average gain is accepted as the standard for the grade some children will be either under-trained or overtrained, and the work of neither class will have counted for a definite positive advance in the ability in question.

An illustration will make the situation plain. In Table XVIII are given the distributions of the grade averages in Test 7 of certain of the ninety 6B classes examined.

It will be seen that eighty-three of the ninety grade averages ( $15+28+26+14$ ), or 92 per cent., fall within the limits eleven to fourteen examples, a range of four units of the scale. In the table are given also the distributions of the individual scores of the class having the highest grade average, of the class having the lowest grade average, and of eight other classes chosen at random from the ninety. The average range of variation in the individual scores in these classes is twelve units of the scale, or twice the extreme difference between the average score of the best and worst class of the ninety. The same facts are shown graphically in Fig. XIII. Note that the range of the individual scores in best and worst classes overlaps through eight units of the scale, or more than the entire range of the ninety grade averages. But seven

Table XVIII—Comparison of Range of Variation in Grade Averages with That in Individual Scores on Basis of Scores in Test 7, Attempts, 6-B Grades

Group	Number in Group	NUMBER OF EXAMPLES ATTEMPTED, TEST 7																	Average Score in Test 7, Attempts
		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
Classes	90	..	..	..	..	..	..	..	6	15	28	26	14	1	..	..	..	..	12.8
Grade Averages.....	Children	1	1	1	1	1	1	4	15	1	9	0	4	3	0	1	..	..	10.0
Lowest Class.....	42	1	1	1	1	1	1	4	15	1	9	0	4	3	0	1	..	..	10.0
2nd ".....	29	..	..	..	2	0	3	11	1	8	1	3	..	..	..	..	..	..	10.3
3rd ".....	13	..	..	..	..	1	1	2	0	2	1	4	1	0	0	..	..	..	12.0
4th ".....	32	..	..	..	..	..	1	6	1	8	0	5	5	0	2	..	..	..	13.0
5th ".....	40	..	..	..	..	..	1	8	0	10	1	8	4	0	2	2	0	4	13.1
6th ".....	30	1	0	0	0	0	0	5	0	8	0	6	2	0	2	3	0	3	13.2
7th ".....	30	..	..	..	1	0	0	4	1	6	0	4	6	0	2	5	0	1	13.5
8th ".....	31	..	..	..	..	..	..	3	0	3	0	5	8	0	4	7	0	1	14.2
9th ".....	31	..	..	..	..	..	1	2	0	7	0	3	6	0	2	5	0	5	14.6
Highest ".....	37	..	..	..	..	..	..	1	0	4	1	7	13	1	3	2	0	5	15.1

The table shows that of the 90 6-B classes examined, the class average of 6 classes was between 10 and 11 examples, of 15 classes between 11 and 12 examples, and so on; also, that in the class having the lowest class average there were 42 children, of whom 1 attempted 3 examples, 1 four, 1 five, etc.; also that the average score of all the 6-B classes was 12.8 examples, of the lowest class 10.0 examples, of the highest class 15.1 examples. The difference between the highest and lowest individual scores in any one class is much greater than the difference between the average scores of the highest and lowest classes.



children out of the thirty-seven in the "better" class have scores that are not equaled by some member of the other class, or but nine members out of the forty-two in the "poorer" class have scores lower than any in the better class. Under such conditions the amount by which one class average is "better" than the other has little significance.

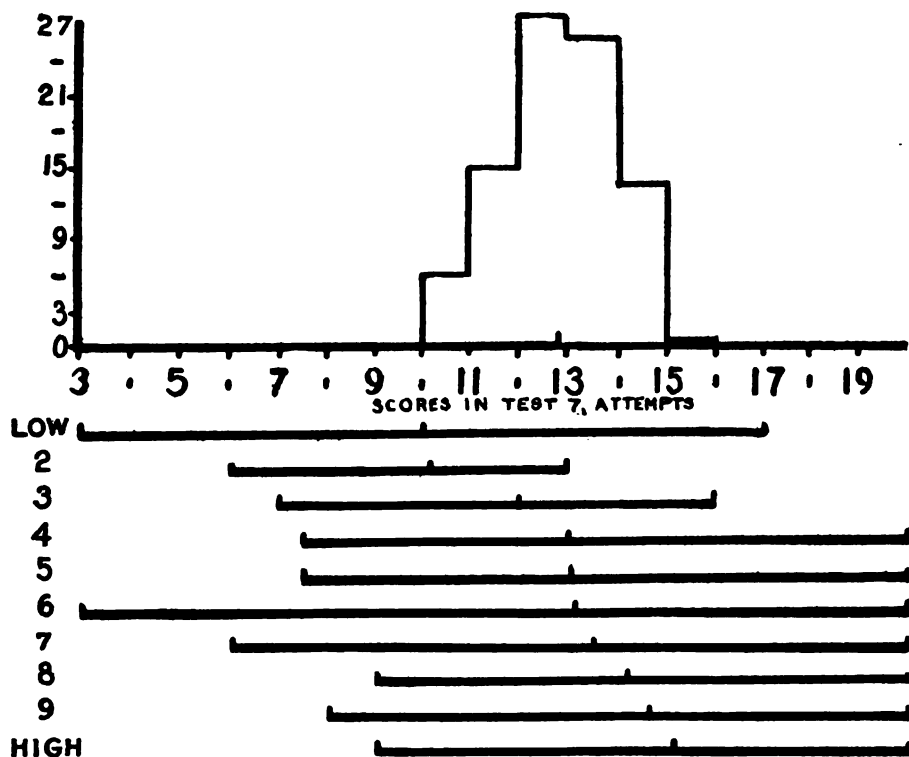


Fig. XV

The upper part of the figure shows the distribution of the grade averages of ninety 6B classes in Test 7, Attempts. The extreme range of the variation is six units, from ten to sixteen examples. The lower part of the figure shows the range of the individual scores in the class having the highest grade average, the lowest grade average, and eight other classes chosen at random. The average range of individual variation in a single class is twelve units. The position of the average score in each class is indicated. As a whole, the figure shows that relatively the difference between the "worst" class and the "best" class is a less important matter than the individual variation within a class.

The difference between the grade averages of any two 6B classes chosen at random will be much smaller on the average than the differences between the scores of two individuals, also chosen at random, from either class. Similar statements are true of other tests.<sup>1</sup> Therefore,

<sup>1</sup> See *Elementary School Teacher*, Vol. XII, No. 3, Nov., 1911.

the efficiency of school work is not to be judged by the position of a class average on a scale. For the movement of the class along a scale is dependent solely on the time and effort given to the work, at least within wide limits. Efficiency is a matter of attaining a desired end with the expenditure of the least energy. The results show plainly that at the present time for any class a given level of ability is reached only by *moving the entire class as a whole*. This means, as before, that some members must be vastly overtrained and others much undertrained. Efficiency would mean that each would receive just the training needed and no more, and that the final abilities of the members of any grade would cluster closely around the average for that grade.

### Cause

The significant measure of efficiency is the per cent. of class membership having scores that fall between set limits on the scale. The ultimate measure of efficiency must take account of time and other costs, also. This leads directly to the question, "Why should the training that is adequate for the average of a class produce such remarkable gains in some and such small results in others?" The answer, which the reader will readily supply for himself, is that children differ in ability and must be treated accordingly. Every one knows this fact, but seemingly no one appreciates its significance; for the school continues to provide uniform treatment in class work to which the children make variable responses according to their abilities; responses that vary so constantly that, irrespective of grade, city, or type of school, the overlapping of grade upon grade is, in respect to any single ability, absolutely constant. It is important, therefore, that the effect of this selective action due to differences in individual capacities be clearly shown and its significance for efficiency developed.

### Individual Differences

A study of the relative development of individuals in related traits reveals great individual differences. In Table XIX are given the seventh-grade averages in Tests 1-5; also the individual scores of five boys and five girls from two 7B classes in the same school. The school was selected at random. In Fig. XVI the same facts are shown graphically. The plot of the grade averages is drawn with scales fully marked that the method of its construction may be plain. A line represents the scores for each test. One scale serves for Tests 1-4 as scores in each of these tests represent number of answers written per minute. For Test 5 the lower scale is used, in which a unit distance is half the size for the same value, since the figures copied per minute by an adult are usually double number the answers per minute in the other tests.

**Table XIX—Relative Development in Tests 1-5, Seventh-Grade Averages and Individual Seventh-Grade Scores**

	NUMBER OF ANSWERS WRITTEN PER MINUTE IN				
	Test 1	Test 2	Test 3	Test 4	Test 5
7th-Grade Averages.....	62	46	41	45	100
Boys					
A.....	61	45	37	50	100
B.....	61	60	40	47	105
C.....	80	25	40	31	90
D.....	60	60	28	47	80
E.....	70	40	40	23	130
Girls					
F.....	60	45	25	37	95
G.....	70	28	39	60	100
H.....	41	46	40	36	80
I.....	60	40	60	40	90
J.....	60	26	55	44	90
K Average of 4 Trials.....	77	48	70	69	150

In constructing the curve from the scores of an individual, a point is found on each line corresponding to the score for that test and a line is drawn from point to point. Such a curve makes evident at once the relative development in the different abilities. Thus, on the average, 7th-grade children do better in addition than in any other test, while the scores in the remaining tests are closely the same, being slightly lower in multiplication. The curves for the individuals were drawn in precisely the same way, but for clearness each figure has been reduced to a minimum. The individuals are selections from the class to show the various types of developments, but are all from the same school and grade. Their curves show every possible type of variation—that is, A is strongest in addition, B is relatively most developed in subtraction, C has relatively a higher score in multiplication, etc. Individual K is from a different class and grade, but took twenty tests in succession. Her curve is drawn with the average values for each test. Similar results could be shown in any quantity. The most difficult record to find is that of an individual equally developed in all traits. Whether such uniformity of development is desirable or not cannot be stated at present, but as long as there is in the school the gross inaccuracy in work that is revealed by the previous tables it is probable that the defects of individual development are related to failure to work correctly as cause is to effect.

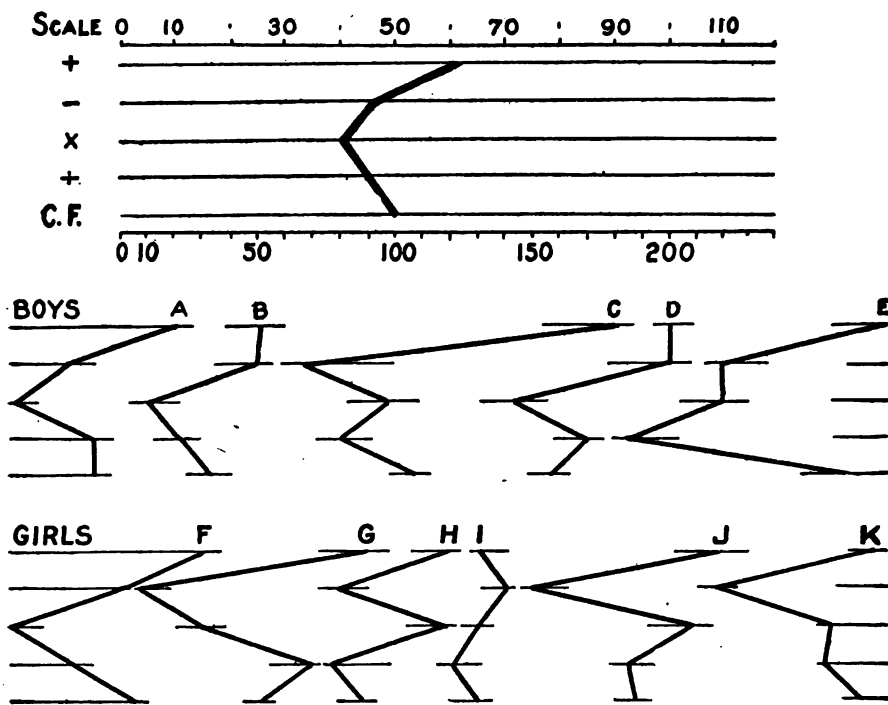


Fig. XVI

The inequalities of individual development in related abilities. Upper figure shows full scales used in plotting the 7B grade averages in the tests shown. Other figures constructed in same way from the scores of individuals, but details omitted for the sake of clearness.

The one constant feature of measurement of individuals is their variability. A careful study of repeated measurements of the same individuals through a period of three years fails to disclose any basis of classification, any trace of "types," upon which a scheme of uniform instruction might be planned. One child that is high in addition is high in subtraction also; the next is high in addition but low in subtraction. The extent of this variation is shown in Table XX. The records of fifty eighth-grade girls, each fourteen years old and from the same school and grade, though from two different sections, were arranged in order of their standings in Test 1, and numbered 1 to 50. Where two individuals had the same score, their relative rank was settled on the basis of their relative scores in the other tests. The records were then rearranged on the basis of their scores in each of the other tests, the relative rank of each being noted for each test. In the table the rankings of a chance selection of individuals are shown. In Fig. XVII, for a few individuals, lines have been drawn tracing their changes in rank.

**Table XX—Relative Ranks of Individuals in Related Abilities**

The record sheets of fifty fourteen-year-old girls from two 8th-grade classes in a school selected because of its excellent scores were arranged in order of scores in Test 1, addition, and numbered 1 to 50, commencing with highest; they were then rearranged and numbered on basis of the scores in each of the other tests. The table gives the ranks in each test of certain individuals.

Individual	RANK IN				
	Test 1 Addition	Test 2 Subtraction	Test 3 Multiplication	Test 4 Division	Test 5 Copying Figures
A	1	4	9	14	6
B	5	10	25	32	15
C	10	12	1	6	46
D	15	16	21	11	29
E	20	25	41	28	9
F	25	39	23	31	30
G	30	29	30	38	17
H	35	48	37	49	24
I	40	46	35	46	23
J	45	30	48	43	38
K	50	44	50	47	34

It is evident at once that, on any basis of sectioning, the class would have to be resectioned for every topic studied. It should also be evident that the factor of individual differences is one of much greater importance than even the figures for constancy of variability would indicate. For where forty children are growing at different rates in a dozen or more distinct but related "traits" the limit of the ability of the teacher to follow intuitively the needs, changes, and final achievements of each member of the class must be quickly reached. Yet this is precisely the problem that confronts a teacher in a New York or any other public school when he takes a grade "in arithmetic." In the absence of definite aims, and of reliable measures of progress, it is little wonder that soon every level of ability is found in the class of the best-prepared and most conscientious teacher, and that the greater his efforts the greater the variability within the class. For able children have also greater powers of growth than their less highly endowed classmates.

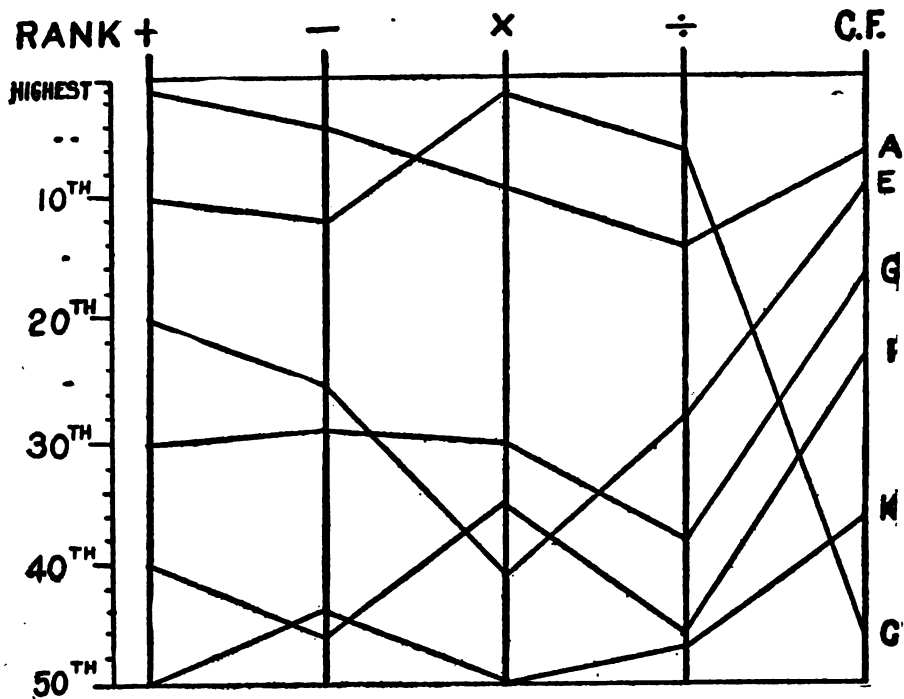


Fig. XVII

Relative rank of fifty girls of same age from same school and grade (8th) in each of five tests. A line joins the positions of each individual in the different tests. The figure shows that A had the highest score in addition, was fourth in subtraction, ninth in multiplication, etc. Grading on the basis of any one ability would not produce classes of uniform ability in other tests.

### Selective Response of Individuals

In view of the far-reaching consequences of these facts, if accepted as true, it becomes of the greatest importance to prove as completely as possible the selective response of the individual and to show the cause of the same. Experimental evidence alone is of value here, opinion has no place whatever. If it were possible to give one individual simultaneously two different trainings or to give two different individuals precisely the same training the results would prove or disprove the statements above. Twins approximate closely certain of these conditions, and in the measurement of 33,000 children measurements of many twins were secured. The individual scores of ten pairs of twins, selected from forty-six pairs, to show the various phases of resemblance and difference, are given in Table XXI and Fig. XVIII.

Table XXI

Scores of ten pairs of twins selected from the records of forty-six pairs to show various phases of resemblances and differences.

Name	Sex	Age	Grade	SCORE IN TESTS				
				1	2	3	4	5
A	Girl	10	4A	46	21	39	26	82
	Girl	10	4A	37	18	33	25	74
B	Girl	13	8B	83	69	55	65	130
	Girl	13	8B	82	67	53	67	136
C	Girl	14	8A	80	67	52	64	159
	Girl	14	7B	77	74	45	64	134
D	Girl	15	8B	62	52	43	56	109
	Girl	15	8B	74	64	56	60	127
E	Girl	10	4B	40	19	40	31	95
	Girl	10	5A	62	32	45	41	95
F	Boy	13	7B	55	29	30	22	57
	Boy	13	7B	58	38	28	33	91
G	Girl	10	5A	42	40	37	34	85
	Boy	10	4B	55	31	40	40	90
H	Girl	7	2A	18	14	13	12	57
	Boy	7	2A	32	16	32	32	20
I	Girl	15	8A	77	48	70	69	150
	Girl	15	8B	69	58	56	68	128
J	Girl	13	7A	55	70	37	46	100
	Girl	13	7B	90	62	60	48	120

<sup>1</sup> Averages of four tests of each kind.

" " two " " " "

Twins are of two general types: identical twins; dissimilar twins. As there were no means of judging whether these twins were similar or dissimilar in appearance, it is impossible to say whether the likenesses and differences shown are due wholly to training or not. Dissimilar twins, however, represent two distinct individuals in inherited traits, and, further, twins receive, as a rule, more closely the same treatment through many years than it would be possible to arrange for in any artificial experiment. The measurement of dissimilar twins, therefore, fulfills closely the second experiment suggested above—two individuals undergoing the same training. Accordingly the writer personally gave a small practice series of twenty tests in succession, four of each kind, to a number of pairs of twins from a single school. He also recorded at the time, before

the tests had been scored, his judgment as to whether the twins were similar or dissimilar in appearance. The series of scores for one pair of each kind, D and I, in the previous figure, are given in Table XXII and shown graphically in Fig. XIX.

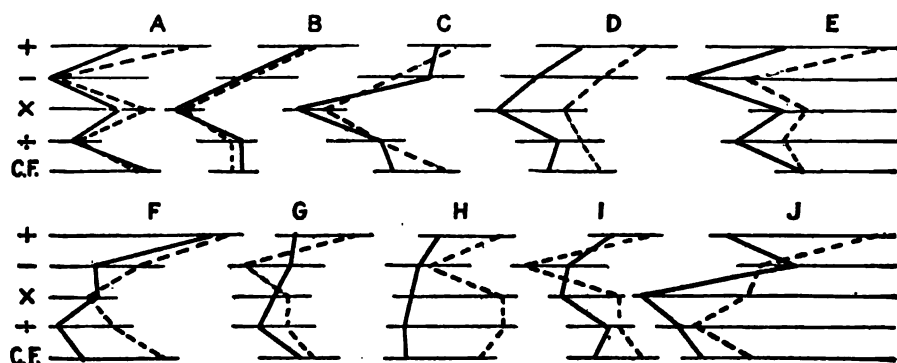


Fig. XVIII

Curves showing individual inequalities of development of twins in five related abilities. Curves drawn as in Fig. XVI. Note that the curves show all degrees of variation from close resemblance to marked differences.

Table XXII

Scores of a pair of similar and a pair of dissimilar twins in a practice series of twenty successive tests, four of each kind. D<sup>1</sup> and D<sup>2</sup> similar. I<sup>1</sup> and I<sup>2</sup> dissimilar.

	Test 1	Test 2	Test 3	Test 4	Test 5
Twins—					
D <sup>1</sup> —1st Trial.....	65	45	32	55	90
2nd ".....	60	55	50	60	120
3rd ".....	67	51	45	53	113
4th ".....	56	59	46	56	115
D <sup>2</sup> —1st Trial.....	80	55	60	60	120
2nd ".....	70	70	55	60	135
3rd ".....	76	60	52	56	125
4th ".....	70	71	57	64	127
I <sup>1</sup> —1st Trial.....	83	47	72	62	160
2nd ".....	81	52	70	68	150
3rd ".....	75	52	71	71	145
4th ".....	71	42	66	74	146
I <sup>2</sup> —1st Trial.....	76	55	64	71	120
2nd ".....	66	61	55	64	145
3rd ".....	63	58	52	70	126
4th ".....	71	59	55	67	120



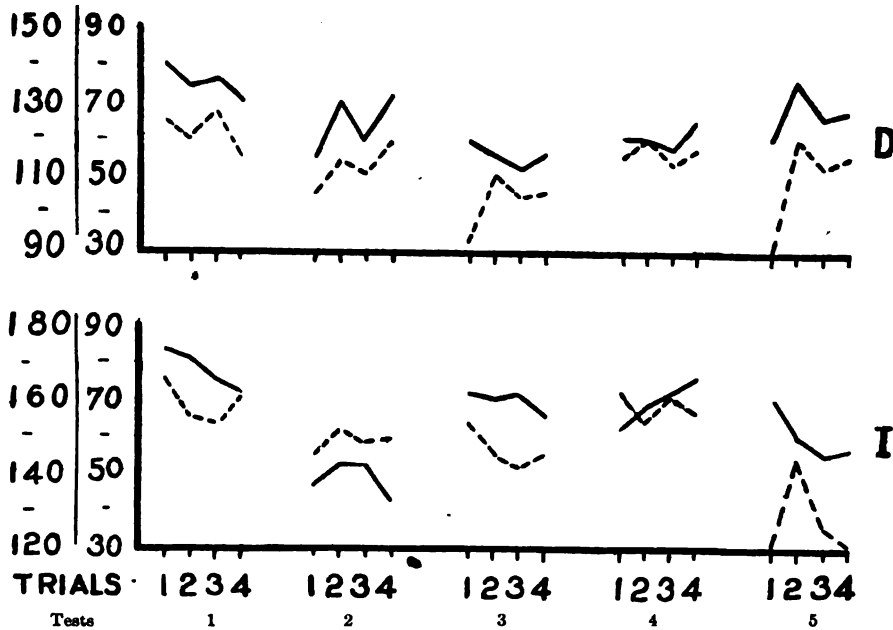


Fig. XIX

Selective response of individuals to uniform training. Variations in scores of a pair of similar (D), and a pair of dissimilar (I), twins while undergoing a practice series of twenty tests, four of each kind, in succession. Note that the similar twins responded in the same way; the dissimilar pair in different ways.

It will be seen that similar twins responded in essentially the same way; dissimilar twins in different ways. As all received exactly the same practice at one time—twenty tests in succession, the results show in a small way exactly what happens in every class under any plan of uniform instruction or uniform assignments of lessons. The inequalities of development of the individual shown above are here seen in the making. The selective response of these individuals is typical of the action which is the direct cause of the overlapping of grades, of present inefficiency.

#### Cause: Heredity (?)

To many the idea that a child has a certain capacity for growth in addition and a totally different capacity for growth in subtraction, and that the school must be guided in its treatment of the child by the character and degree of its powers as revealed by measurement, is so new and revolutionary that it seems worth while to attempt to follow the basic facts further. If such specialization of powers exists, it must be due either to heredity or to early training. If to heredity, likenesses in fam-

ily traits should be easily traced. In Table XXIII are given the data from the measurement of a family of ten from the writer's private records. The family gathered around the dining-room table and took the tests together, a series of ten tests in succession being given. The writer himself acted as examiner, and the tests were given under standard conditions. The curves for certain members of the family are shown in Fig. XX.

**Table XXIII—Average Records Made by Family M**

All members tested at the same time, ten tests, two of each kind, being taken in succession.

Date, Dec. 19, 1911

Place, Detroit, Michigan

Name	Age	SCORES IN TESTS				
		1	2	3	4	5
Father F.....	53	77	69	57	59	122
Mother M.....	45	52	28	34	31	102
Boy A.....	24	102	87	73	75	156
Boy B.....	23	81	82	58	70	107
Boy C.....	21	65	66	53	58	116
Girl D.....	19	87	78	69	70	125
Girl E.....	15	70	49	66	62	135
Girl G } Twins {	14	80	57	39	53	143
Girl H }	14	53	34	45	39	110
Boy I.....	12	46	33	33	45	115

From the figure it is evident that the father and mother are opposites; that certain of the children resemble one parent and certain resemble the other; that the qualities are not sex limited, as both boys and girls resemble the father. As an interesting confirmation of the discussion of the preceding paragraphs, the resemblance of one twin to the father and the other to the mother should be noted. In this case it would seem plain that the inequalities of development in the different abilities are certainly due to differences in inherited characteristics; that the children are as highly specialized in the qualities of their minds as they are in color of hair, shape of various features, and other physical characteristics. The writer has measured in this way six families and found similar irregularities of development and strong resemblances in all. This is not sufficient evidence for any finality of statement, but, in view of the conditions shown to exist in the schools, in view, also, of the inequalities in the development of most individuals, it is very certain that the whole problem of education must be approached from a new point of view.

The child is the raw material upon which the educational process

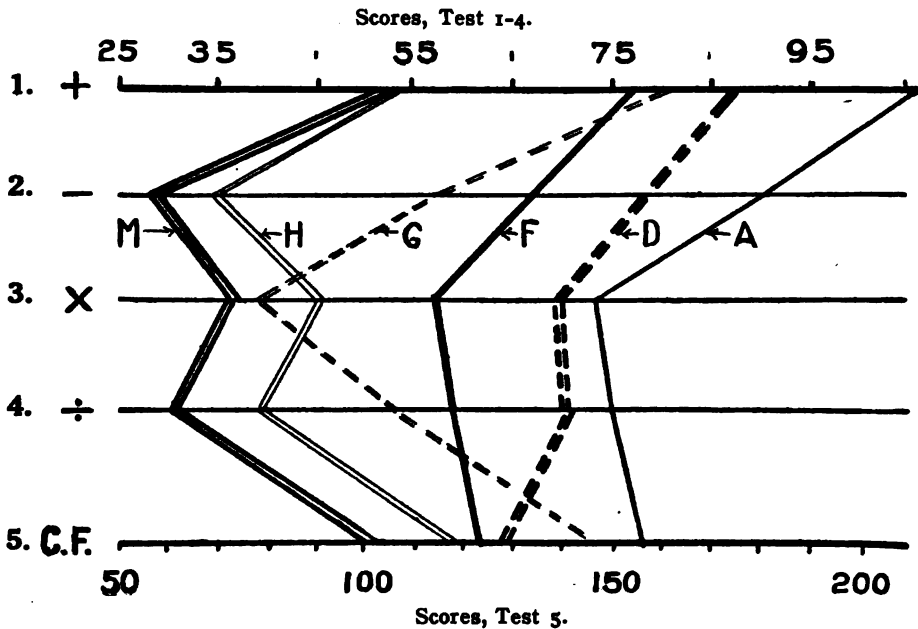


Fig. XX

Family resemblances in individual inequalities of development in five related abilities. F equals father; M equals mother. For the sake of clearness, the curves of four children have been omitted. G and H, twin girls, although attending school together, have markedly different curves, one-resembling the father, the other the mother.

acts. This raw material is a living organism, specialized by the forces of heredity, living, acting, growing in accordance with the natural laws of its own development, and responding to each training to which it is subjected in a manner that is determined by both its natural powers and its past experiences. Education seeks to make certain changes in this raw material. It is certain that such changes can be made efficiently only when the characteristics of the material to be acted on are known, when the laws of its behavior are discovered, and when the progress of the change that is being made is followed quantitatively as well as qualitatively. In other words, education must fit its courses and method to the child, and not vice versa, and such fitting must not be on the basis of opinion, no matter how learned or how great an authority the personage from whom the opinion comes. Fact, scientifically determined fact, alone is the proper basis for educational theory, and each new hypothesis must ultimately be put to the tests of quantitative experimentation.

### Conclusions

The writer considers that, in the foregoing paragraphs, incontrovertible evidence has been presented that the product of school work in

New York City in the fundamental operations of arithmetic is an exceedingly variable quantity and that, in the sense that the schools should produce certain well-defined changes in the children that pass through them, their efficiency is low; that this condition is universal, and is not due to lack of effort, or other conditions that could be easily remedied, but to a neglect of one basic factor—the differences in the powers and capabilities of individual children; that children of school age are highly specialized in their mental characteristics either by the forces of heredity or of early training, and, as in the schools uniform treatment is provided for variable material, the response is selectively variable. This is the major thesis of the report. The remedies for existing conditions are obvious when once assent is given to the main proposition. To produce a uniform product from variable material, variable treatment based upon the measured characteristics of the material must be provided. The following sections of the report deal with the practical workings of such a scheme. Standards of achievement derived from the actual scores made by the children in these tests furnish definite objective aims. Applications of the principles of comparative testing that could be made by principals and teachers are outlined; problems relating to the laws of change and development, and to the determination of efficient methods, are enumerated; finally, certain phases of the results are discussed from the standpoint of supervision.

## **Section VI**

### **Standards: Their Selection and Use**

#### **Content of Section**

In the previous section it was suggested that the remedy for the existing inefficient conditions in our schools is to be found in standardization; that the aims of the teacher should be clearly defined by standard scores and standard growth for each grade and ability, and that the character and amount of work to be done by each individual should be determined by his measured needs. The present section will deal with the selection of such standards and with their use in the schools.

#### **Standards: General Discussion**

By a "standard" score for a grade in any test is meant a score set as a measure of the degree of ability to be attained by the children in that grade. Every examination at the present time contains this idea of standard, but with this difference: examinations ordinarily attempt to measure knowledge; the child is not given the same examination twice. Standard tests measure skill in the control of knowledge. Essentially the same tests are given at the beginning of the year, at intervals during

the year, and from year to year. The child's growth is shown by increased scores.

It must be evident at once that the selection of scores to serve as standards is a matter of vital importance to the success of any scheme of instruction based on them. If the work of the children in any grade is conditioned in any way by their sex, maturity, physical condition, or mental powers, the scores must be adjusted to the conditions. If all the individuals of society have need of a certain common degree of ability in arithmetic, that need must be met by the school course. Further, in the development of the component abilities of arithmetic, there may be fundamental relations between them and a lack of proper balance may render the work inefficient.

These and many other considerations that might be named make it evident that the selection of standard scores is no simple matter. As the teaching of arithmetic has not been studied from this point of view, no body of knowledge is available as a basis for selection. Tentative scores are necessary, however, for tentative scores alone make possible studies of the changes which school work is actually producing, control experiments to determine better methods, and measurement of various social and industrial workers—housewives, bank clerks, stenographers, etc.—to determine the degree of ability in arithmetic that is really essential to success.

#### Comparison with New York Averages

Reference has already been made to a coöperative investigation undertaken by the writer to determine standard scores for use in his own classes.<sup>1</sup> The scores there chosen as standard were based upon the average or most frequent score made by the children of the various grades measured in order that a reasonable standard might be attained. The averages by grades for the New York schools are given in Table XXIV and are shown in Fig. XXI in graphic form (solid lines), together with curves based upon standard scores (dotted lines) for comparison.

Table XXIV—Average Scores by Grades for New York City

Test	1	2	3	4	5	6		7		8	
Grade						Att.	Right	Att.	Right	Att.	Right
4th.....	41.9	29.5	28.7	26.6	75.4	3.5	1.8	8.8	4.2	3.1	.7
5th.....	50.2	36.8	35.0	34.7	85.5	4.4	2.3	10.9	5.8	3.1	.9
6th.....	56.9	41.0	38.3	39.7	92.5	5.1	3.0	12.5	7.0	3.1	1.3
7th.....	62.2	45.8	40.9	44.6	100.0	5.5	3.7	14.0	8.5	3.3	1.7
8th.....	69.5	52.2	45.8	50.9	106.8	6.0	4.4	15.7	10.1	3.5	2.1
9th.....	71.6	52.2	46.5	52.5	98.8	6.1	5.1	15.7	10.9	3.6	2.5
10th.....	71.7	55.3	46.8	52.7	104.5	6.0	5.1	16.1	11.5	3.5	2.6
11th.....	73.9	55.2	48.6	54.2	109.4	6.2	5.1	15.4	10.5	3.6	2.7
12th.....	74.2	54.1	46.6	55.0	105.6	6.7	5.7	16.0	11.0	3.8	2.7

<sup>1</sup> See p. 10, also p. 96.

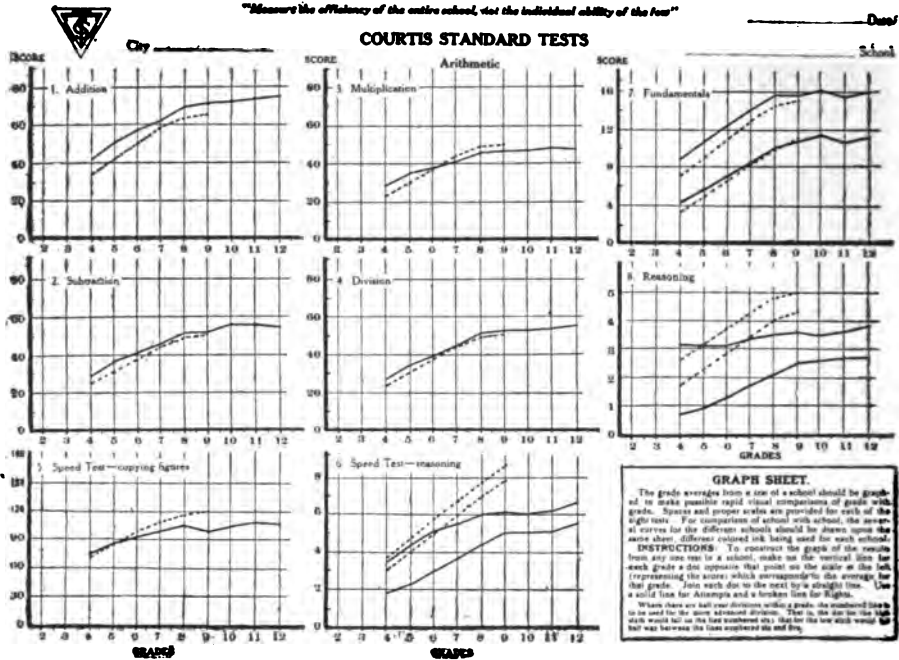


Fig. XXI

Heavy line—grade averages from 27,171 New York school children, A & B classes combined. Dotted lines—standard scores.

It will be noted that in general the forms of the New York and Standard curves, and the relative values for the different grades, are closely the same except in the reasoning tests. The New York averages are high in the abstract work and low in the reasoning, but, except for the reasoning, the differences are not sufficient to warrant a change in the standards, particularly in view of the meaning of these differences as brought out below.

### Explanations

The higher averages of the New York schools in the abstract work, as shown by the table, agree with the conclusions of the writer from talks with principals and from the answers to the questionnaire previously mentioned. In very many schools special attention is given to arithmetic and both teachers and principals seemed keenly alive to the importance of speed and accuracy in fundamental principles. It should be noticed, however, that while the results, particularly in Test No. 7, show a decided gain in speed, the curve for examples right does not rise above the standard. At how great a cost in time and effort such

higher "average" scores are obtained can never be learned until careful records are kept of the time actually devoted by each teacher to the arithmetical work. That, in spite of the strenuous and conscientious efforts of the New York teachers, so slight an advantage (?) has resulted bears eloquent testimony to the uselessness of attempting to make changes in children without a knowledge of the factors involved. For tabulations show plainly that accuracy has been sacrificed to speed and that the emphasis on the abstract work beyond a certain point has been fatal to a proper growth in "reasoning."

### Accuracy

In support of this first contention, Table XXV is presented. In it is shown the number of children making each score in examples attempted in Test 7 and the percentages of each group that attained to different degrees of accuracy. For instance, of the 27,171 scores tabulated, 2,223 were of nineteen attempted; 89 of eighteen attempted, and so on. Of the group of 2,223 individuals whose scores were nineteen examples attempted, 2 per cent. (33) had all nineteen right, 10 per cent. had an accuracy of from 70 per cent. to 79 per cent. right, 7 per cent. had none right. A very superficial examination of this table will show that

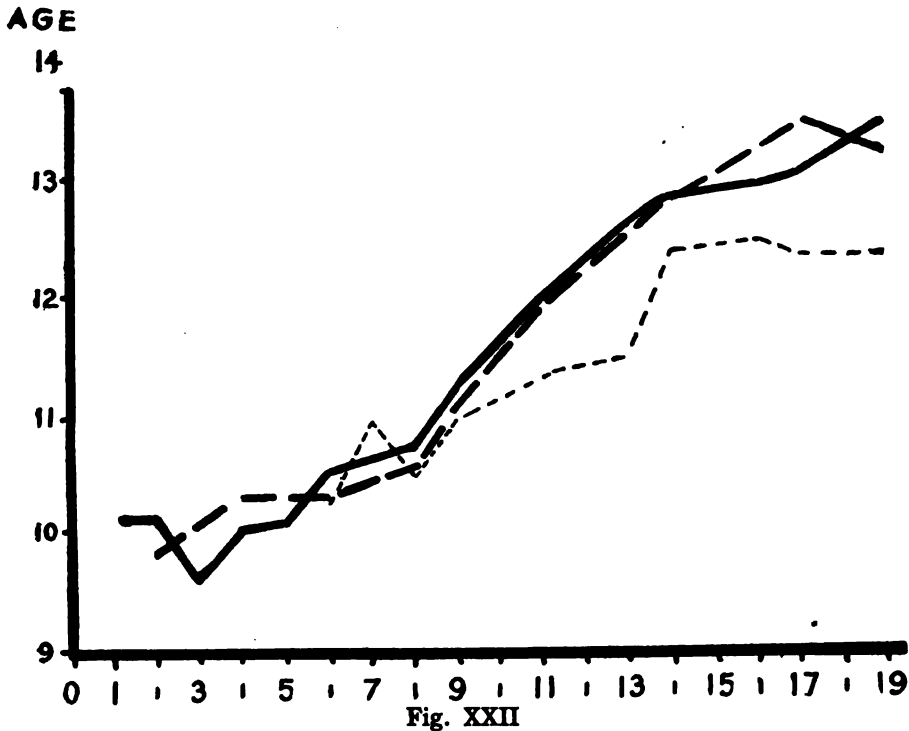
Table XXV

Test 7 Atts.	No. Making Score	ACCURACY IN TEST <sup>1</sup>											
		100%	95%	85%	75%	65%	55%	45%	35%	25%	15%	5%	0%
19	2,223	2	2	8	10	13	12	11	8	9	11	7	7
18	89	2	1	12	9	19	19	4	5	8	17	2	2
17	2,308	2	4	16	19	9	17	12	4	8	4	2	3
16	1,480	2	4	14	8	19	18	6	11	5	8	3	2
15	450	1	4	13	12	19	11	14	7	9	4	3	3
14	2,736	4	6	10	23	12	20	7	4	8	2	2	2
13	2,658	3	6	9	11	23	10	10	13	5	4	3	3
12	514	3	9	8	12	13	23	9	9	5	3	3	3
11	4,644	6	10	13	14	14	12	11	7	5	4	2	2
10	583	4	9	11	15	14	14	11	7	7	4	..	4
9	4,509	8	..	14	16	16	16	11	8	5	3	..	3
8	2,027	6	..	13	15	16	16	..	13	9	7	..	5
7	339	3	..	17	15	..	18	18	..	13	10	..	6
6	1,122	8	..	16	..	20	18	..	16	..	13	..	9
5	618	9	..	17	..	22	..	21	..	16	..	..	15
4	346	9	..	..	17	..	27	..	..	24	..	..	23
3	250	16	..	..	..	29	..	..	24	..	..	..	31
2	133	19	..	..	..	..	35	..	..	..	..	..	46
1	62	24	..	..	..	..	..	..	..	..	..	..	76
0	82	..	..	..	..	..	..	..	..	..	..	..	100
Total....	27,171	5	4	12	14	15	15	9	8	6	5	2	5

<sup>1</sup> The distribution of the 27,171 individual records on basis of score in number of examples attempted in Test 7 is given in the second column; that is, 2,223 attempted nineteen examples, 89 eighteen examples, etc. The remainder of the table shows the per cent. of each group that attained to the various degrees of accuracy; that is, of the 1,480 children who attempted sixteen examples, 263 had eight examples right, 263 is eighteen per cent. of 1,480 and this number appears in the table in column headed 55 per cent. accuracy, since 8 examples is 50 per cent. of sixteen examples. In the column headings, 75 per cent. means from 70 per cent. to 79 per cent. In the number making the zero score in number attempted are included 33 records with impossible scores.







Comparison of ages of children grouped on basis of accuracy of work in Test No. 7. The solid line represents the average age of the children attempting 3 examples, 5 examples, etc., in Test 7, and succeeding in getting every example right. The broken line represents the average age of those half of whose examples were right. The light dotted line represents those who had only one example in six to ten right (19 per cent.-10 per cent.). This last very inaccurate group is composed of younger children who worked too rapidly.

for each rate of speed (19 examples in 12 minutes, 10 examples in 12 minutes, and so on), the average age was found; also the average total score in Tests Nos. 1 to 4, and the average scores in Test 6, both attempts and rights. The inferences to be drawn from the results are suggestive. The data are given in Table XXVI, and for age in Figure XXII.

In this figure, the solid line represents the 100 per cent. group, the broken line the 50 per cent. group, and the light line the 10 per cent. group. It is apparent that in the lower levels of ability, and for the 100 per cent. and the 50 per cent. groups throughout, there are no differences in age between the accurate and inaccurate children, but from 9 examples on the younger children who work at high speed, do so at the expense of accuracy. Accuracy, therefore, is probably related to both speed and maturity. Here as elsewhere the problem is one of balance. The child should learn to work rapidly, but development in speed and development

in accuracy should be carried on together. For such rapid work as is represented by these tests a reasonable speed, at any level of ability is that speed at which at least 70 per cent. of the answers are right. The value of standard scores for purposes of control should need no discussion.

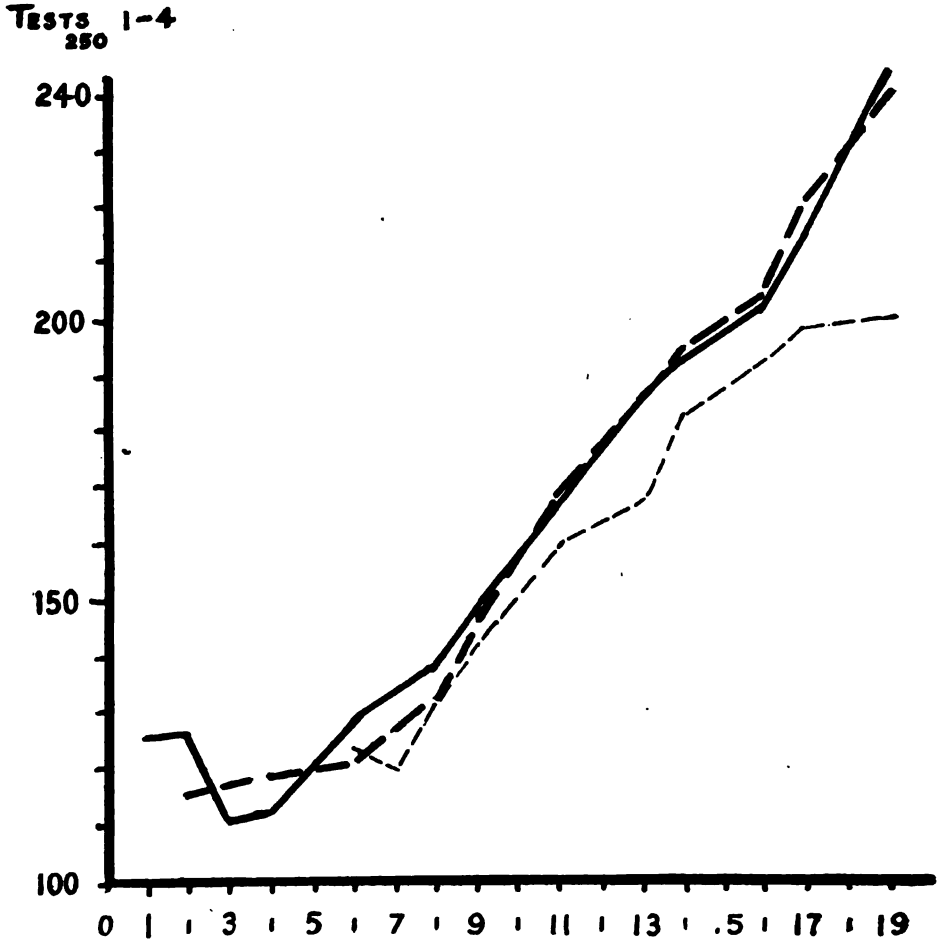


Fig. XXIII

Comparison of scores in Tests 1-4 (knowledge of the tables) of children grouped on basis of accuracy of work in Test 7 as in previous figure. Solid line the 100 per cent. group, broken line the 50 per cent. group, light broken line the 10 per cent. group. The curves for the 100 per cent. and the 50 per cent. groups are closely the same throughout, that for the 10 per cent. group is somewhat lower. That is, knowledge of the tables is not a factor in determining the accuracy of a person's work, except for the very inaccurate. Compare with results shown in Tables XXII, XXIII, XXIV, XXV.

The comparison of the three groups in total scores in Tests Nos. 1-4, knowledge of the tables, is shown in Figure XXIII.

A certain knowledge of the tables is essential to successful work, and part of the inaccuracy of the 10 per cent. group is undoubtedly caused by its lack of ability in tests 1-4. But as the 50 per cent. group and the 100 per cent. group have equal command of the tables, it should be clear that knowledge of the tables alone does not insure accuracy.<sup>1</sup> As pointed out below, beyond a certain point drill on the tables may be not only useless, but positively harmful.

In Figs. XXIV and XXV are presented the comparisons for speed and accuracy in reasoning.

### TEST 6 ATTEMPTS

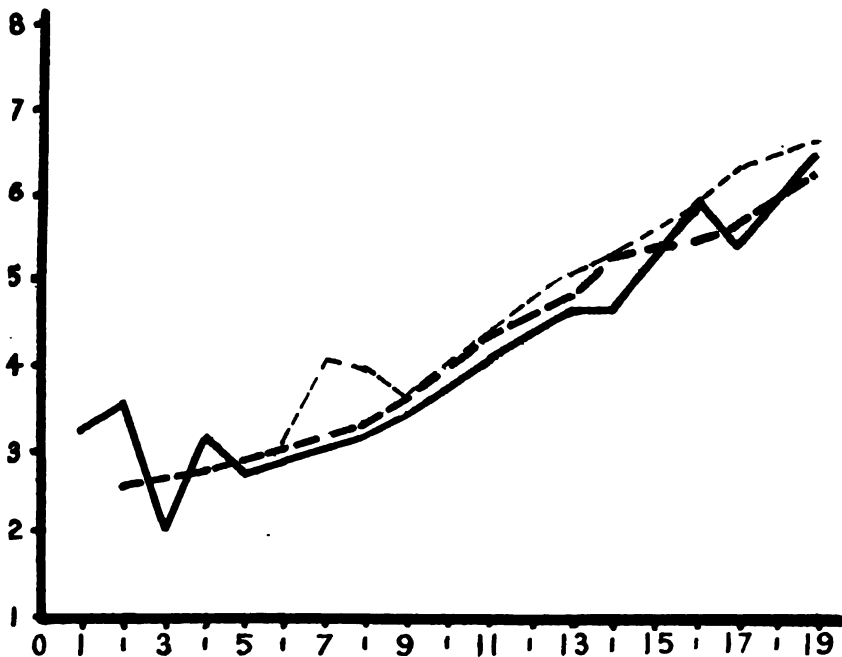


Fig. XXIV

Comparison of scores in Test 6 (speed reasoning attempts) of children grouped on basis of accuracy of work in Test 7, as in previous figures. Solid line the 100 per cent. group, broken line the 50 per cent. group, light broken line the 10 per cent. group. The inaccurate groups have slightly higher scores.

Figures XXIV and XXV show that the inaccurate groups attempt more reasoning examples than the accurate group, but get less right.

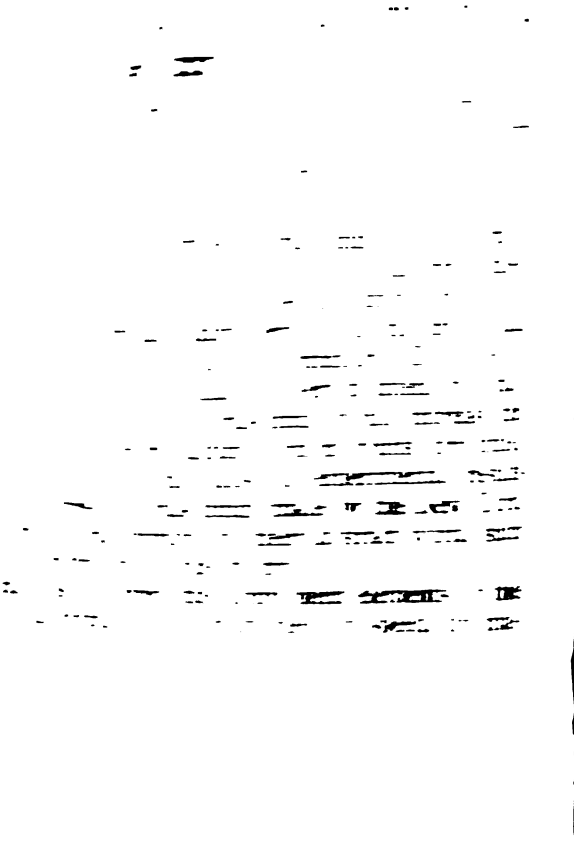
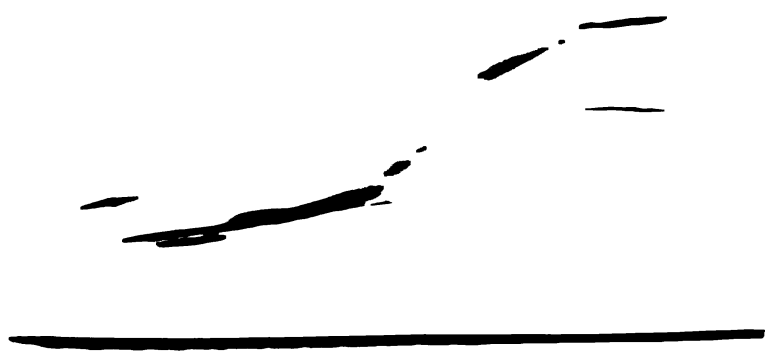
<sup>1</sup> See Fig. XXV, page 89.

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turity possibly, and by training in reasoning. It should be clear, therefore, that the problems of time, place and degree of development of accuracy and its relation to speed are all important questions, whose solution by experimental means should be commenced at the earliest possible moment.

### Influence of Abstract Work on Reasoning

The influence of abstract work upon reasoning is an important consideration in the selection of standards. Stone's results show that many schools high in fundamentals were low in reasoning, but that none high in reasoning were very low in the abstract work.

The lowness of the New York scores in reasoning led to a study of the connection between the two types of results. The data are given in Tables XXVII, XXVIII, XXIX, and XXX, and are presented in full, boys and girls separately. In Tables XXVII and XXVIII the relation between the number of examples attempted in Test 7 and in Test 6 is given. The scores were first distributed on the basis of scores in Test 7; then each group redistributed on the basis of the related score in Test 6. Thus, of the 13,629 boys, 1,043 boys had a score of nineteen examples attempted in Test 7; of this group, two had a score of 0 examples at-

**Table XXVII—Ability to Work Abstract Examples and Ability in Speed Reasoning—Boys<sup>1</sup>**

Test 7 Atts. Score	No. Mak- ing Score.	TEST 6, ATTEMPTS																
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
19	1,043	2	13	31	81	87	156	235	154	113	70	41	20	8	9	6	5	12
18	40	1	...	...	2	4	9	6	4	8	2	...	1	1	...	...	1	1
17	1,052	2	6	19	80	145	228	250	155	84	41	23	10	3	1	2	1	4
16	736	1	2	19	63	142	180	167	68	40	28	13	8	3	...	...	1	1
15	197	...	...	5	18	33	45	88	23	19	9	5	...	1	1	...	...	...
14	1,356	...	7	46	172	281	359	273	109	54	33	14	4	...	1	1	...	...
13	1,331	4	18	104	221	287	308	204	97	44	26	6	2	4	2	1	...	2
12	236	...	3	11	36	50	59	41	19	5	3	3	3	1	1	1	...	3
11	2,323	8	45	256	512	537	483	285	106	51	23	11	4	...	2	...	...	...
10	278	...	14	34	69	56	48	29	9	10	3	2	1	...	3	...	...	...
9	2,323	20	136	460	625	452	361	164	54	27	12	9	2	...	...	1	...	...
8	1,113	15	117	255	303	213	128	48	18	10	1	3	2	...	...	...	...	...
7	1,170	7	23	35	33	31	23	12	4	...	...	1	1	...	...	...	...	...
6	606	12	86	175	159	85	44	18	12	9	1	3	2	...	...	...	...	...
5	335	6	65	97	72	58	18	10	3	1	2	1	...	...	...	...	...	2
4	195	9	48	47	37	23	12	11	3	2	...	...	1	...	1	...	...	1
3	147	8	29	41	36	18	7	5	1	1	1	...	...	...	...	...	...	...
2	80	8	18	15	14	5	...	...	3	1	...	...	...	...	...	...	...	...
1	33	1	8	9	7	5	...	2	...	...	...	...	...	...	...	...	...	1
0	35	3	2	6	6	9	6	3	...	...	...	...	...	...	...	...	...	...
Total..	13,629	107	640	1,666	2,547	2,530	2,477	1,801	842	479	255	135	61	21	21	12	8	27
Aver. in Test 7, attempts.....		7.7	8.2	9.4	10.8	11.6	13.0	14.2	14.9	15.3	15.8	15.6	15.7	17.1	15.2	16.8	18.7	14.8

<sup>1</sup> The table shows that, of 13,629 boys, 107 attempted no examples in Test 6. Of the 107, three attempted no examples in Test 7; one attempted one; eight attempted two, etc., the average score of the group being 7.7 examples. It also shows that, of 1,043 boys who attempted nineteen examples in Test 7, two attempted no examples in Test 6; thirteen attempted one, etc.

tempted in Test 6, thirteen a score of 1 example, thirty-one of 2 examples, and so on. The average score in Test 7, attempts, of each of the vertical arrays is also given. The results are shown graphically in Fig. XXVI, where B is the curve for boys and G for girls. It is evident that, in spite of great individual variation, one ability is, on the average, directly related to the other.

In Tables XXIX and XXX, constructed in the same way, the data are presented for scores in Test 7 (rights) and in attempts in Test 6. It is to be noted from the table and curves that for both boys and girls the two abilities increase together up to a maximum, eight for boys and ten for girls, but that, beyond this point, a higher score in reasoning is on the average associated with a lower score in the abstract work. In other words, only those can read rapidly and understandingly who have failed to receive the drill necessary to produce, under the condition of work in the New York schools, the ability to work abstract examples correctly. In the larger number of cases those who have mastered the abstract work have a lower score in reasoning than those whose development in abstract work has not proceeded so far. So completely do the two parts of the curve balance each other, that the plot of the averages of the vertical arrays result in almost a straight line.

**Table XXVIII<sup>1</sup>—Relation Between Ability to Work Abstract Examples and Ability in Speed Reasoning—Girls**

Test 7 Atta. Score	No. Mak- ing Score	TEST 6 ATTEMPTS																
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
19	1,180	1	2	29	61	124	221	271	174	114	69	38	23	14	13	7	5	14
18	49	...	...	1	3	7	7	9	9	7	4	1	...	1	...	...	...	...
17	1,254	...	10	30	113	190	284	298	163	83	31	26	10	8	5	1	...	2
16	745	1	8	28	91	138	180	145	68	39	20	13	6	4	3	1	...	2
15	253	...	2	7	26	51	58	46	29	12	10	4	3	3	1	...	...	1
14	1,384	2	15	68	191	320	342	234	105	60	21	7	8	5	2	2	...	2
13	1,330	1	18	105	236	296	286	200	93	44	21	10	11	2	2	...	1	4
12	279	1	5	19	53	69	55	45	17	7	3	2	1	1	1	...	...	...
11	2,330	8	82	314	553	556	437	218	74	39	20	11	11	4	...	2	...	1
10	305	3	15	53	75	70	46	17	11	4	4	1	1	1	1	1	...	2
9	2,188	15	195	489	590	385	277	130	57	21	13	6	4	3	...	2	...	1
8	917	9	96	230	266	144	92	52	14	8	5	5	1	3	1	...	...	1
7	170	4	23	45	40	37	9	6	3	...	...	1	1	1	...	...	...	...
6	517	11	104	153	121	61	35	17	8	2	1	1	1	2	...	...	...	...
5	284	11	68	80	57	39	15	8	4	1	1	...	...	...	...	...	...	...
4	151	3	35	47	24	26	9	3	1	...	1	...	...	...	...	1	...	1
3	106	4	29	31	21	10	5	3	1	...	...	...	...	...	...	...	1	1
2	56	4	10	16	7	10	3	2	2	1	...	...	1	...	...	...	...	...
1	30	1	5	7	7	4	3	1	2	...	...	...	...	...	...	...	...	...
0	14	1	3	...	4	5	1	...	...	...	...	...	...	...	...	...	...	...
Total.	13,542	80	725	1,752	2,529	2,540	2,365	1,705	835	442	224	126	82	52	29	17	7	32
Aver. in Test 7, attempts.....		7.9	8.5	9.8	11.2	12.5	13.6	14.6	15.2	15.8	15.4	15.9	15.2	15.9	16.7	15.1	16.4	15.9

<sup>1</sup> The table shows that, of 13,542 girls, 725 attempted but one example in Test 6. Of the 725, two attempted nineteen examples in Test 7, eight attempted sixteen, fifteen, fourteen, etc., the average score of the group being 8.5 examples. It also shows that, of 1,180 girls who attempted nineteen examples in Test 7, one attempted none in Test 6, two attempted one, twenty-nine attempted two, etc.

Table XXIX—Relation Between Ability to Work Abstract Examples Correctly and Ability to Attempt Speed Reasoning—Boys

Score in Test 6, Attempts	Score in Test 7, Rights											Number making Scores	Average Score in Test 7 Rta.									
	0	1	2	3	4	5	6	7	8	9	10			11	12	13	14	15	16	17	18	19
16	11	5	5	...	1	1	1	1	1	...	1	...	...	1	...	...	...	...	...	...	27	2.9
15	2	1	1	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	8	3.1
14	5	2	1	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12	4.9
13	2	2	4	1	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21	3.8
12	2	6	3	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21	5.1
11	9	3	5	7	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	61	6.3
10	16	14	6	...	12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	135	7.0
9	16	14	17	16	18	12	15	13	11	11	7	4	5	5	6	3	...	...	...	...	2	7.6
8	19	20	26	26	38	21	23	23	23	23	17	13	13	15	5	...	...	...	...	...	255	8.1
7	37	41	44	39	53	34	40	48	43	43	28	33	29	18	14	10	9	7	2	2	479	8.1
6	78	48	74	109	96	57	79	82	82	63	62	57	57	80	77	22	16	11	9	3	842	8.0
5	93	113	129	157	198	137	153	190	169	169	174	127	80	74	43	33	25	12	4	...	1,801	8.1
4	134	118	148	166	214	205	238	275	219	219	172	156	98	74	43	33	10	9	1	4	2,477	7.4
3	148	135	170	238	256	259	281	281	221	221	153	126	90	53	29	23	6	6	2	1	2,530	6.9
2	119	133	131	173	188	209	207	255	199	199	115	71	51	30	20	10	6	3	...	...	2,547	6.2
1	91	68	84	64	80	73	175	137	96	96	55	16	11	4	3	1	1	1	...	...	1,666	5.4
0	26	13	16	10	12	7	67	53	34	15	3	5	...	...	...	...	...	...	...	...	640	4.3
No. mak- ing Scores	803	729	864	1,010	1,180	1,327	1,380	1,289	1,320	1,066	794	614	436	318	206	142	76	49	13	13	13,629	.....
Av. Score in Test 6 Attm.	4.6	4.5	4.6	4.6	4.5	4.5	4.6	4.8	5.0	5.1	5.5	5.6	5.8	6.1	6.1	6.2	6.8	6.4	6.9	7.3	.....	.....

<sup>1</sup>The table shows that, of 13,629 boys, 13 had 19 examples right in Test 7. Of this number, one attempted four examples in Test 6, four attempted five, etc., etc., the average score of the group being 7.3 examples. It also shows that, of 27 attempting 16 examples in Test 6, 11 had no examples right in Test 7, five had one, five had two, etc., the average score of the group being 2.9 examples.

Table XXX<sup>1</sup>—Girls

Score in Test 6, Attempts	Score in Test 7, Rights										Number making Scores	Average Score in Test 7										
	0	1	2	3	4	5	6	7	8	9			10	11	12	13	14	15	16	17	18	19
16	5	5	6	5	1	5	1	2	1	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	32	3.8
15	2	3	2	2	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	17	1.5
14	1	3	2	1	5	2	1	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	29	5.6
13	7	5	7	4	4	2	6	5	6	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	52	4.0
12	8	5	7	4	4	2	6	5	6	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	52	5.2
11	10	8	4	8	7	7	11	7	7	6	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	126	6.7
10	18	14	16	18	15	10	20	22	17	13	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	224	6.7
9	18	14	16	18	15	10	20	22	17	13	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	224	7.3
8	22	24	26	24	25	31	26	30	43	38	32	20	24	26	20	8	2	2	3	.....	442	8.1
7	24	28	30	36	46	73	66	74	83	71	51	35	38	42	30	24	6	8	1	.....	835	8.6
6	38	43	77	80	90	112	136	128	160	169	149	135	107	87	69	49	32	24	12	.....	1,705	8.8
5	65	66	88	86	158	187	212	225	261	220	185	192	112	111	77	51	39	16	10	.....	2,385	8.4
4	78	91	129	146	180	222	230	268	270	226	181	163	125	80	59	37	15	24	5	.....	2,440	7.7
3	64	91	147	160	234	269	262	283	244	224	160	117	125	51	37	14	9	3	1	.....	2,599	6.9
2	91	95	140	154	176	233	205	183	186	160	65	51	30	17	12	7	4	2	1	.....	1,752	6.1
1	71	73	79	101	88	79	68	62	43	28	14	8	3	4	.....	.....	.....	.....	.....	.....	723	4.8
0	13	7	12	15	9	7	5	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	80	3.9
No. Mak- ing Scores	555	565	788	869	1,065	1,289	1,254	1,312	1,327	1,110	862	784	522	429	322	202	129	96	42	20	13,542	.....
Average in Test 6 Atta. ...	5.0	4.8	4.6	4.4	4.5	4.5	4.6	4.7	4.9	5.0	5.1	5.4	5.5	5.6	5.7	6.0	6.0	6.2	6.5	6.5	.....	.....

<sup>1</sup>The table shows that, of 13,542 girls, 20 had 19 examples right in Test 7. Of this number, four attempted three examples in Test 6, etc., etc., the score for the group being 6.5 examples. It also shows that, of 32 attempting 10 examples in Test 6, five had no examples right in Test 7, six had one, etc., the average score for the group being 3.8 examples.



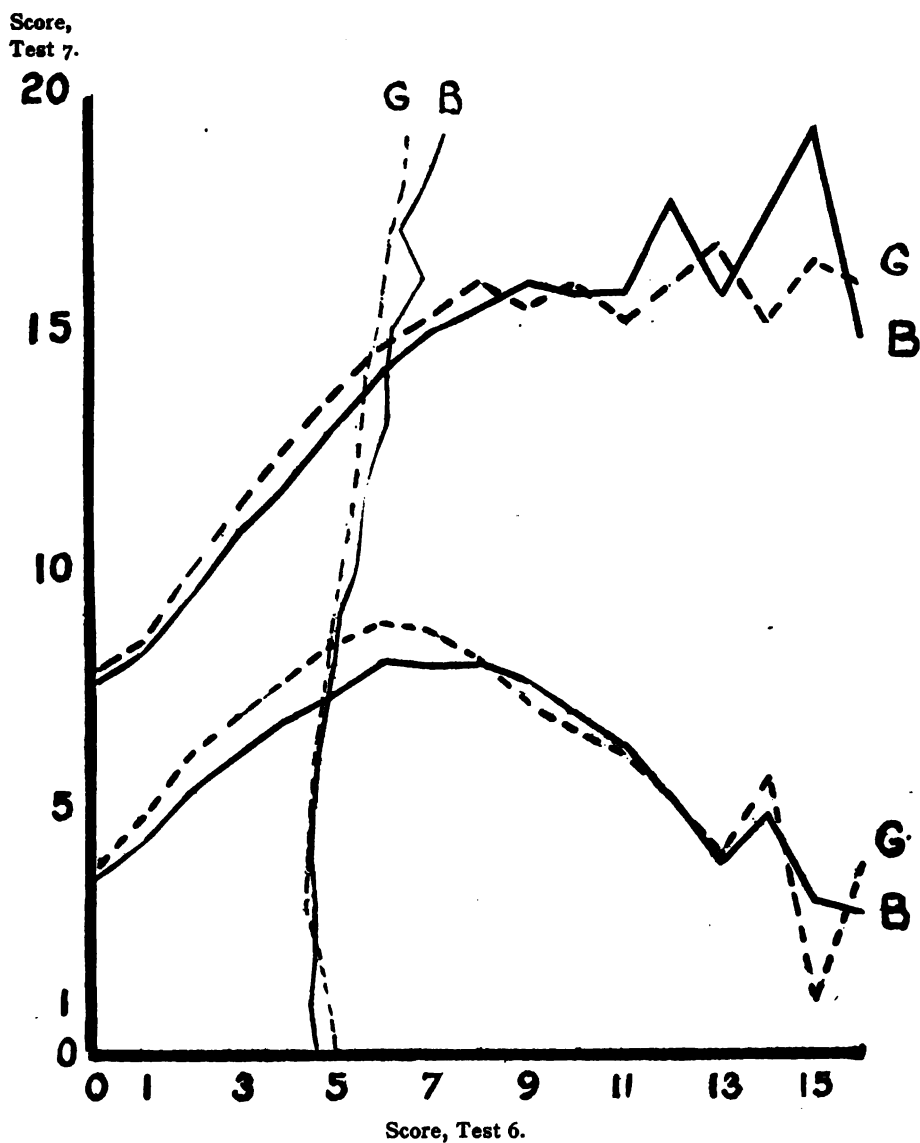


Fig. XXVI

Relation between ability in abstract work and ability in simple reasoning. The curves show that, for both boys and girls, the ability to attempt a large number of examples in Test 7 is on the average associated with the ability to attempt a correspondingly large number of examples in Test 6. But in the case of rights in 7 and attempts in 6, after the critical point is reached, a higher ability in abstract work is associated with a lower ability in reasoning—caused by the overemphasis and drill on abstract work.

That ability to tell the operation to be used in simple one-step problems is inherently opposed in any way to ability in abstract computation is not to be considered for a moment. The causes of the decline of the curve are to be found in the distribution of time in the classroom. To force the averages above the point to which they are easily raised by ordinary classroom effort, an undue amount of time must be given to drill. The law of diminishing returns explains why for every higher level reached a still greater expenditure of energy is necessary to produce further progress and, in the case of the New York schools, the high scores in the abstract work have been dearly bought. The benefit of skill that cannot be intelligently put to use is questionable, and the same effort better directed would produce not only ability in reasoning, but greater accuracy as well. For, as has been previously pointed out, at present the whole class must be moved to move the average. Those already near the upper limit of training must be pushed still higher than those lower down, sadly in need of drill, may receive a small part of what is their due. Measurement and standard scores make such procedure unnecessary.

**Table XXXI—Relation Between Accuracy in Speed Reasoning (Test 6, Rights) and Ability to Work Abstract Examples (Test 7, Attempts and Rights)**

Score in Test 6, Rights	Number of Children Making Score	Average Score of Each Group in Test 7, Attempts	Average Score of Each Group in Test 7, Rights
16	1	13	13
15	0	....	....
14	0	....	....
13	1	9	5
12	8	17.1	10.6
11	7	16.7	9.7
10	39	16.3	10.6
9	86	16.2	10.8
8	271	15.8	9.9
7	555	15.6	9.8
6	1,357	14.9	9.6
5	2,280	14.2	8.7
4	3,145	13.5	7.9
3	4,341	12.6	7.2
2	6,203	11.2	6.1
1	6,155	10.2	5.4
0	3,272	9.3	4.4
..	27,701	....	....

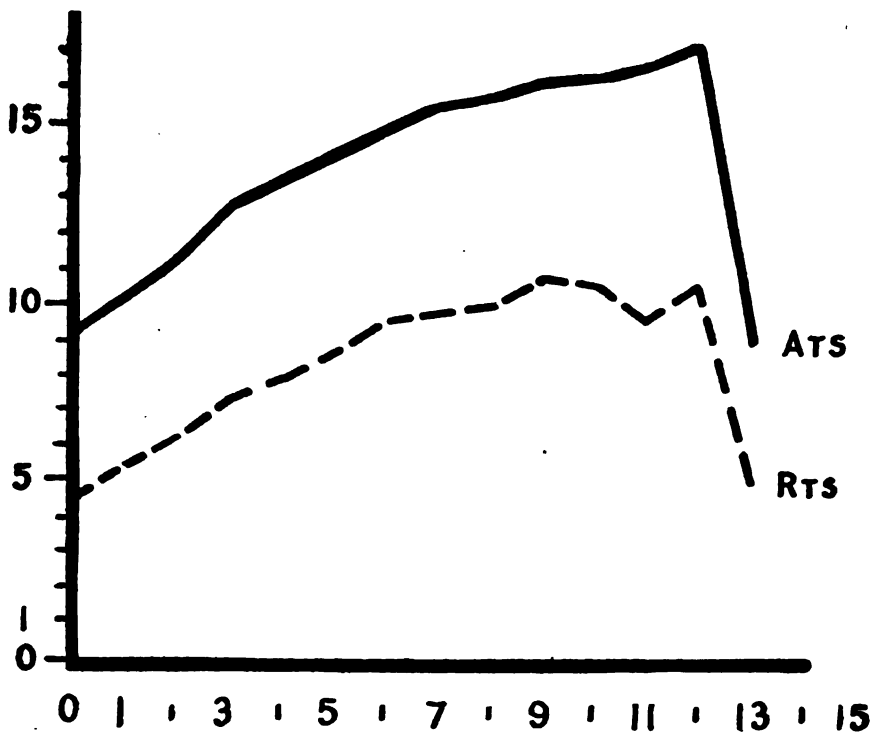
The total of this table, 27,701, differs from previous totals through a mistake of the Statistical Service Company. In the first attempt to make this tabulation, a small group of records was omitted. In the correction of this error, a number of records were included which had previously been rejected. As, however, the figures from the two tabulations were either exactly the same, or nearly so, and as, further, the removal of these extra cards would have entailed three or four days' work, at a time when there were no days to spare, it was decided to accept the figures given. The error is not serious and in no way changes the character of the result.

**Relation between Accuracy in Abstract Work (Test 7, Rights) and Accuracy in Reasoning (Test 6, Rights)**

It is advisable to follow the discussion further. The decline of the curve in Fig. XXVI might be due, in part at least, to the high scores made by those who merely "put something down" without regard for accuracy. Accordingly, a tabulation was made on the basis of examples right in both Test 7 and Test 6. The results are shown in Table XXXI and Fig. XXVII. It will be noted that both curves rise steadily almost to the end. That is, a high score (relatively) in examples right, Test 6, is on the average associated with a correspondingly high score in Test 7, both attempts and rights.

These discussions make plain the effect of the emphasis on the abstract work in the New York Schools.

**TEST 7**



**Fig. XXVII**

Relation between ability in simple reasoning, Test 6, Rights, and ability in abstract work, Test 7, both attempts and rights. The two abilities are directly related.

The major effect is to decrease the amount of time and attention given to the reasoning work so that for the city the average scores in reasoning are low. (Two-thirds of the entire 27,171 children have scores of three right or lower, the standard score for the 4th grade.) A second effect is to produce habits of rapid, inaccurate work; for those who attempt many examples in one test attempt a correspondingly large number in the other. Those who are accurate in one test are accurate in another, and those who are grossly inaccurate in one are equally inaccurate in the other. A third effect to be accounted for in some individuals is the production of a marked ability in one test at the expense of the other. For example, some children that were able to attempt 19 examples in Test 7 and had 17 right, had a score of only one or two in Test 6, and, on the other hand, some children that had a score of 12 right in Test 6 attempted but 9 in Test 7, of which four were wrong. As a whole, the discussion should make evident the need for a careful balancing of the various types of work in the course of study, and the necessity for the scientific measurement of the changes that are now being produced in the children in the schools.

#### **Relation of Drill on Tables to Accuracy**

On first thought, the idea that less drill, not more, will produce higher scores and greater accuracy is against common sense, particularly the common sense of the business man in whose memory of the school days of other years "drills" on the tables stand out in vivid clearness. A little consideration will show, however, that it is not the decreased amount of drill that is in itself to be of benefit, but the better use of the drill period and the participation in the drill only by those who need it. It is true that, in general, if the tables of combinations are not well learned, good work cannot be done; but it is not at all true that continued study of the tables by a class as a whole or continued practice in "figuring" will produce continued growth.

The place of drill in education is one of the debated questions of the day. It cannot be discussed here. But in Tables XXXII, XXXIII, XXXIV, and XXXV and Fig. XXVIII is given the evidence that makes some points clear. The sum of a child's scores in the first four speed tests is a measure of his knowledge of the fundamental combinations. In the table and figure, the relation between such total scores and the ability in Test 7 is brought out by a twofold distribution as above. It will be noted that on the average the score in examples attempted and right for both boys and girls rises consistently and positively with each increase in knowledge of the combinations until the maximum is reached, but that beyond this point further knowledge of the tables produces lower scores in Test 7. In the curve for rights the rise is less marked and the maximum ability reached in Test 7 is much lower. In other words, knowledge of the combinations makes for speed and accuracy

**Table XXXII<sup>1</sup>—Relation Between Knowledge of Tables (Total Score, Tests 1 to 4) and Ability to Work Abstract Examples (Test 7, Atts.)****Boys**

Score Test 7 ATTEMPTS	Number Making Score	TOTAL SCORE IN TESTS 1-4															
		0-29	30	60	90	120	150	180	210	240	270	300	330	360	390	420	450
19	1,043	1		3	34	67	123	175	247	202	115	49	24	2			1
18	40					1	2	9	18	3	5	2					
17	1,052			1	7	41	115	311	314	166	67	20	9	1			
16	736				15	31	137	248	168	92	32	8	2	1			
15	197			1	2	8	34	65	47	25	10	4	1				
14	1,356		1	1	21	118	356	487	239	95	28	3	4	2		1	
13	1,331			8	33	170	445	417	174	57	15	9	2		1		
12	236				8	35	66	68	34	16	5	2		1			
11	2,323		1	6	116	585	834	513	183	57	22	3	2	1			
10	278			5	34	76	92	44	18	8	1						
9	2,323		1	49	427	843	614	262	83	27	11	2	3			1	
8	1,113		4	76	341	358	196	91	27	13	5		2				
7	170		1	15	57	53	28	9	4	3							
6	606		4	85	253	153	73	25	9	3	1						
5	335			8	75	106	88	36	12	6	2	2					
4	195		4	40	66	49	26	4	5	1							
3	147		3	35	50	33	18	6		1				1			
2	80		4	16	31	16	8	4			1						
1	33	1	1	3	15	7	2	2	2								
0	35		3	4	10	11	2	1	3	1							
Total.....	13,629	2	35	424	1,626	2,743	3,207	2,753	1,581	772	320	102	52	8	1	2	1
Average in Test 7 attempts.....			5.5	6.9	8.5	10.0	11.9	13.1	14.8	16.0	16.9	17.0	16.6	15.7			

<sup>1</sup> The table gives the distributions of 13,629 boys in each of the two tests as in previous tables. "30" in the column headings means a total score of from thirty to fifty-nine in Tests 1-4.

**Table XXXIII<sup>1</sup>—Relation Between Knowledge of the Tables (Total Score, Tests 1-4) and Ability to Work Abstract Examples (Test 7, Atts.)****Girls**

Score Test 7 Attempts	Number Making Score	TOTAL SCORE IN TESTS 1-4															
		0-29	30	60	90	120	150	180	210	240	270	300	330	360	390	420	450
19	1,180			4	10	42	86	200	327	268	139	62	27	9		4	2
18	49						6	8	11	15	8		1				
17	1,254			1	8	21	123	346	397	241	77	27	8	4		1	
16	745				7	30	111	268	201	92	24	7	2	3			
15	253			1	2	6	34	82	66	37	19	5	1				
14	1,384			3	17	91	365	484	288	99	24	10	2	1			
13	1,330		1	4	32	149	400	468	177	70	17	7	5				
12	279			3	13	33	92	73	37	24	1	3					
11	2,330			11	127	566	867	486	176	73	12	7	4	1			
10	305			5	35	95	87	48	21	11	3						
9	2,188			42	440	772	606	212	76	27	6	3	4				
8	917		1	69	289	293	164	65	22	10	3			1			
7	170			14	56	57	23	9	3	6		1					
6	517		6	75	181	146	64	28	11	3		1			2		
5	284		4	61	90	67	40	13	7		2						
4	151		3	38	50	31	18	8	3								
3	106		4	25	30	26	12	5	2	1	1						
2	56			11	16	13	10	4		1		1					
1	30		1	4	4	11	5	4		1							
0	14			1	2	6	2		2	1							
Total.....	13,542		21	372	1,409	2,455	3,115	2,811	1,827	980	336	134	54	21		5	2
Average in Test 7 attempts.....			5.7	7.1	8.7	10.1	11.9	13.9	14.9	16.2	17.2	17.9	17	16.7			

<sup>1</sup> The table gives the distributions of 13,542 girls in each of the two tests as in previous tables. "30" in the column headings means a total score of from thirty to fifty-nine in Tests 1-4.

**Table XXXIV<sup>1</sup>—Relation Between Knowledge of the Tables (Total Score, Tests 1-4) and Ability to Work Abstract Examples (Test 7, Rights)**  
**Boys**

Score Test 7 Rights	Number Making Score	TOTAL SCORE TESTS IN 1-4															
		0	30	60	90	120	150	180	210	240	270	300	330	360	390	420	450
19	13						1		7	4	1						
18	13							1	6	3	3						
17	49					2	2	11	19	13	2						
16	76						7	17	18	20	6	6	2				
15	142					3	8	32	45	30	16	4	3	1			
14	206					7	25	63	57	32	9	7	4	2			
13	318					7	52	109	76	45	13	12	4				
12	436					12	78	126	107	62	38	8	5				
11	614				8	56	124	184	132	71	18	13	7				1
10	794				10	77	205	248	129	78	36	8	1	1	1		
9	1,066		3	51	172	281	285	160	65	32	14	1	2				
8	1,320		8	97	267	395	299	137	74	27	12	3				1	
7	1,289	1	12	125	299	368	278	120	44	29	7	4	1			1	
6	1,380		25	159	363	367	262	129	49	18	3	5					
5	1,327	2	42	213	357	329	219	91	43	25	3	2	1				
4	1,180	3	52	213	292	287	185	89	40	16	1	2					
3	1,010	7	81	205	240	200	139	93	33	8	1	3					
2	864	5	59	186	209	189	110	66	26	10	2	2					
1	729	4	67	178	188	145	79	44	19	4	1						
0	803	2	13	75	181	192	144	106	56	21	9	2	4				
Total.....	13,629	2	35	424	1,626	2,743	3,207	2,753	1,581	772	320	102	52	8	1	2	1
Average in Test 7 Rights.....		2.3	3.3	4.4	5.6	6.8	7.9	9.2	9.3	9.3	10.7	9.1	9.5	10.5	7.8	11.5	

<sup>1</sup>The table gives the distributions of the scores of 13,629 boys in the two abilities as in previous tables. "30" in the column headings means a total score of from thirty to fifty-nine.

**Table XXXV<sup>1</sup>—Relation Between Knowledge of Tables (Total Score, Tests 1-4) and Ability to Work Abstract Examples (Test 7, Rights)**  
**Girls**

Score Test 7 Rights	Number Making Score	TOTAL SCORE IN TESTS 1-4															
		0	30	60	90	120	150	180	210	240	270	300	330	360	390	420	450
19	20					1	2	1	4	6	2	2	2				
18	42							5	15	8	8	2	2	1		1	
17	96						5	18	24	20	15	9	3	1		1	
16	129					1	10	32	41	27	10	8					
15	202						13	58	55	55	16	4	1				
14	322					4	33	78	102	62	27	8	5	2		1	
13	429					10	57	155	94	69	25	12	3	3			1
12	522				2	13	91	167	129	77	30	10	1	2			
11	784				8	63	178	234	170	78	35	12	5	1			
10	862				4	84	229	251	160	89	26	13	5	1		1	
9	1,110			3	35	159	307	274	188	92	37	11	3				
8	1,327			3	78	265	376	299	185	86	26	3	5	1		1	
7	1,312		1	16	148	289	355	256	153	63	16	5	5	4			
6	1,254			18	152	299	332	233	118	71	20	8	3				
5	1,289		1	39	192	318	328	203	140	48	11	7	2				1
4	1,065		1	58	179	271	253	181	61	41	13	5	1				
3	869		6	67	186	203	186	113	63	33	5	3	3	1			
2	788		4	56	176	189	154	112	57	22	9	5	3	1			
1	565		4	58	123	156	107	58	33	16	4	4		2			
0	555		4	54	126	130	99	83	35	17	1	3	2	1			
Total.....	13,542		21	372	1,409	2,455	3,115	2,811	1,827	980	336	134	54	21		5	2
Average in Test 7 Rights.....			2.7	3.4	4.1	5.8	7.8	8.4	9.4	9.9	10.8	10.6	9.9	9.5		13.5	9.5

<sup>1</sup>The table gives the distributions of the scores of 13,542 girls in the two abilities, as in previous tables. "30" in the column headings means a total score of from thirty to fifty-nine.

■ ■ Score, Test 7.

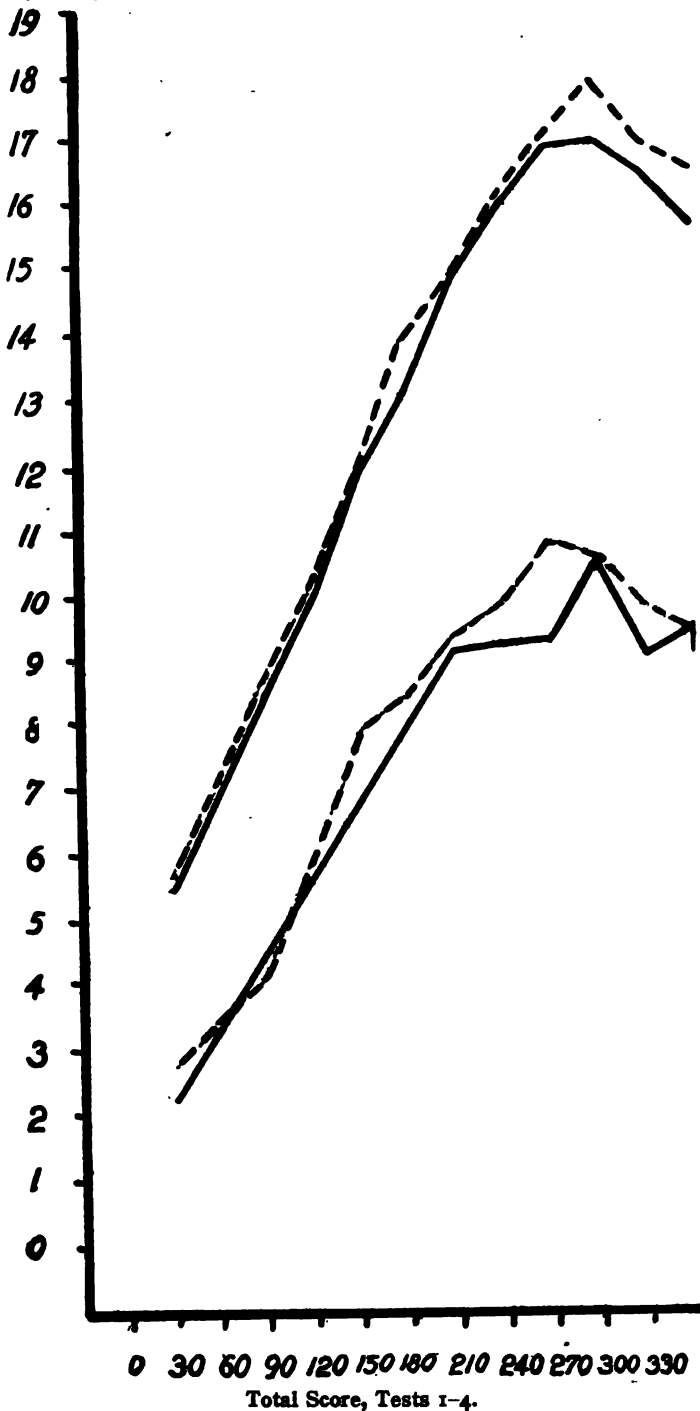


Fig. XXVIII

Relation between knowledge of the tables and speed and accuracy in abstract work. Solid line, boys; dotted line, girls; upper lines, attempts; lower lines, rights. The curves show that beyond a critical point, approximately 270, knowledge of the tables is less and less often associated with high scores in either examples attempted or examples right. Up to the critical point, knowledge of the tables makes for speed in abstract work, and to a far less extent for accuracy.

up to a certain point, but beyond this point other factors play such an important part that a greater knowledge of the tables is in itself of no benefit.

The curves for both boys and girls agree closely. The critical point is approximately 270 for all the curves, or an average score of sixty-seven in each of the four tests. Practically, however, owing to the irregularities in individual development (as previously noted) the individual scores (except in addition) do not rise so high. Accordingly, the standard scores selected for adult ability are put well within this limit.

A careful study of the table, however, will show that this most frequent relation between these two abilities is by no means the only significance of the data presented. For it is evident that the internal organization of individual minds must be very different. Of the 206 boys able to work fourteen examples in Test 7 correctly, seven did so, with each a total score of 135 in the four speed tests; while seven others did no better, although their total scores in the combinations were each 315, two and one-half times as great. Or, considering the behavior of the 772 boys whose total score was 255 points in Tests 1-4, one of them succeeded in getting all nineteen examples done correctly, but one hundred others had scores of three examples or less. With such individual differences, it must be clear that knowledge of the tables is not in itself any guarantee of ability to work examples.

### Scores Recommended as Standards

From these and other similar considerations, the scores previously selected <sup>1</sup> as standards and given in Table XXXVI are recommended as standards for the New York schools, tentative bases for experimental and corrective work. If a child's score exceeds the standard he will ordinarily need little attention, but should be excused, wherever possible, from further practice in that particular line of work. If, on the other hand, his score falls below the standard, the amount of his practice should

Table XXXVI—Standard Scores

Test No.	No. 1	No. 2	Nos. 3 and 4	No. 5	No. 6		No. 7		No. 8	
					Atts.	Rts.	Atts.	Rts.	Atts.	Rts.
Grade 3.....	26	19	16	58	2.7	2.1	5.0	2.7	2.0	1.1
Grade 4.....	34	25	23	72	3.7	3.0	7.0	3.3	2.6	1.7
Grade 5.....	42	31	30	86	4.8	4.0	9.0	4.9	3.1	2.2
Grade 6.....	50	38	37	99	5.8	5.0	11.0	6.6	3.7	2.8
Grade 7.....	58	44	44	110	6.8	6.0	13.0	8.3	4.2	3.4
Grade 8.....	63	49	49	117	7.8	7.0	14.4	10.0	4.8	4.0
Grade 9.....	65	50	50	120	8.6	7.8	15.0	11.0	5.0	4.3
Time Allowances, minutes.....	1	1	1	1	1	1	12	12	6	6

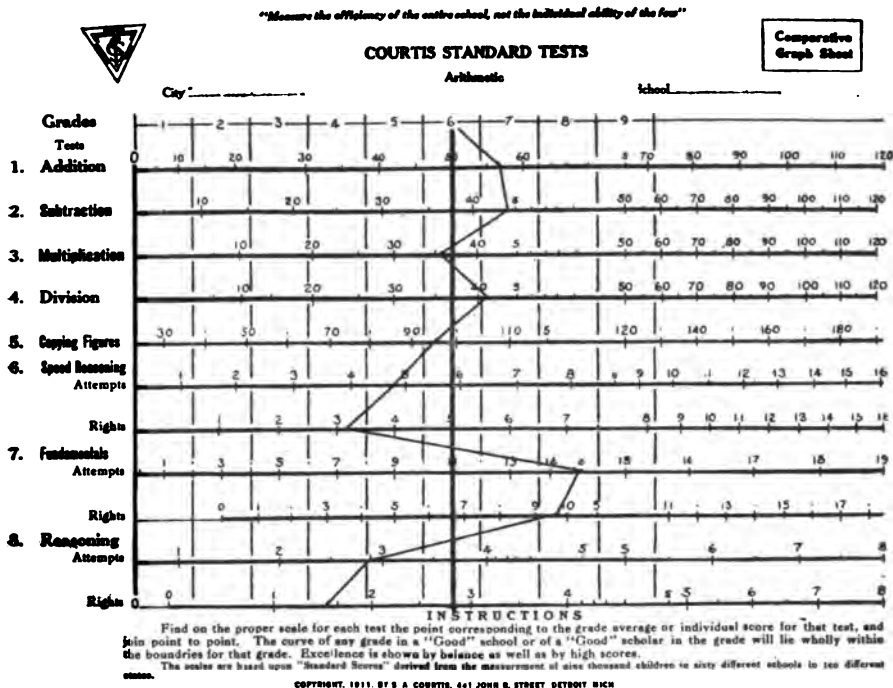
<sup>1</sup> See page 10.



be increased. In other words, adjustment of drill should be made on the basis of the measured needs of the individual. The particular form of practice a given child may need must, as ever, be determined by the wisdom of the teacher. The oral drill that will be effective with one will prove utterly futile with another; but in standard tests and standard scores, the teacher has at least a means of diagnosis of individual defects that will enable him to concentrate his efforts where they will do the most good, and a method of measuring the results of any efforts he may make. He need no longer drill the able fruitlessly, nor fail to help the weak.

### The Comparative Graph

The problem of ministering thus closely to the needs of forty to fifty children is a serious one; but the facts presented above make it certain that along this path only is there hope of improvement. The



**Fig. XXIX**

Comparative graph sheet based upon standard scores. The scales for each test are so drawn that the standard score for any grade falls directly underneath the grade. The heavy line is the curve drawn from the standard scores. The lighter line represents the actual average scores made by a certain sixth grade class in a New York public school. The curve shows that this particular class does well in abstract work, but is low in reasoning.

working out of practical methods must be the great problem of the immediate future. One device that is of service is the comparative graph sheet, shown in Fig. XXIX. A horizontal line is drawn for each type of score and for grades. The scales along these lines are so constructed that the standard score in each test falls directly under the corresponding grade. If, then, a point be found on each line corresponding to the score of an individual or grade in the test the line represents, and if a line be drawn from point to point, the resulting curve will show graphically the relation of those scores to the standard. For the standard curve is a straight line. In the figure, the standard sixth-grade curve has been drawn, also the curve of the grade averages of a single sixth-grade class selected at random. The relations discussed above are apparent at once. The class is above the standard in the abstract work, but falls below in reasoning.

#### Uses: Diagnosis of Individual Defects

Uses of the comparative graph as a practical classroom device for keeping track of the children's needs will suggest themselves at once. In Fig. XXX are given the records of five children chosen from a seventh-grade class in the best school examined. These curves again make it plain that variability is the chief characteristic of school products in arithmetic. Individual A is most nearly standard in spite of the fluctuations of the curve. B is quite uniformly several grades below the standard in nearly every test. C represents an individual able to make the standard score in Test 7 without a standard equipment in the tables. He works accurately but is very poor in reasoning. D and E are two opposite types. D needs no special attention in spite of great irregularities in the component abilities, as his score in Tests 7 and 8 are quite exceptional. Such cases are rare. E, on the other hand, in spite of high scores in Tests 1-4, does very poorly in Test 7 and worse in reasoning. In such cases the cause must be determined from the character of his mistakes.

From the foregoing it should be clear that standard scores by no means impose mechanical methods of procedure upon the teacher. Standard tests are no substitute for initiative and resourcefulness. They but make plain the actual conditions. Where these are unsatisfactory, the remedy is often obvious, but where the usual remedy fails the teacher has at least a definite measure of the effects produced by any experiments she may try.

In Fig. XXXI the heavy line is the graph of the average scores made by the grade as a whole and over it have been drawn in the lighter lines the five individual records. The figure is given not that any detailed information may be gained from it, but that the meaning of the individual variation discussed above may be seen in its true relation to the work of a class.

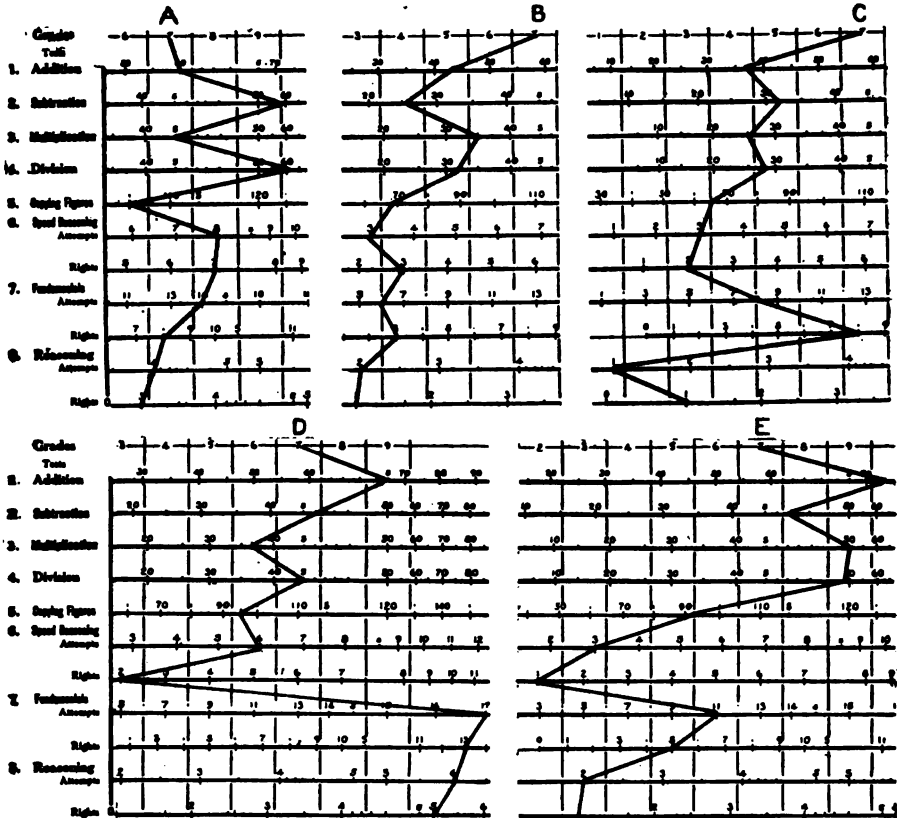


Fig. XXX

Curves of scores made by five individuals in a 7B class in one of the best schools tested—showing use of the comparative graph in determining individual defects. A needs special work in addition and multiplication and direct practice in “carrying” and related abilities in abstract work; B needs special work all along the line and is probably misgraded; C represents a peculiar type and is likely to be benefited, not by drill on the tables, but by reasoning work; D is another example of the same type and needs no attention whatever in spite of low scores in the tables, as his scores in Tests 7 and 8 are satisfactory; E has been overdrilled in abstract work, needs applied problems and motivated work.

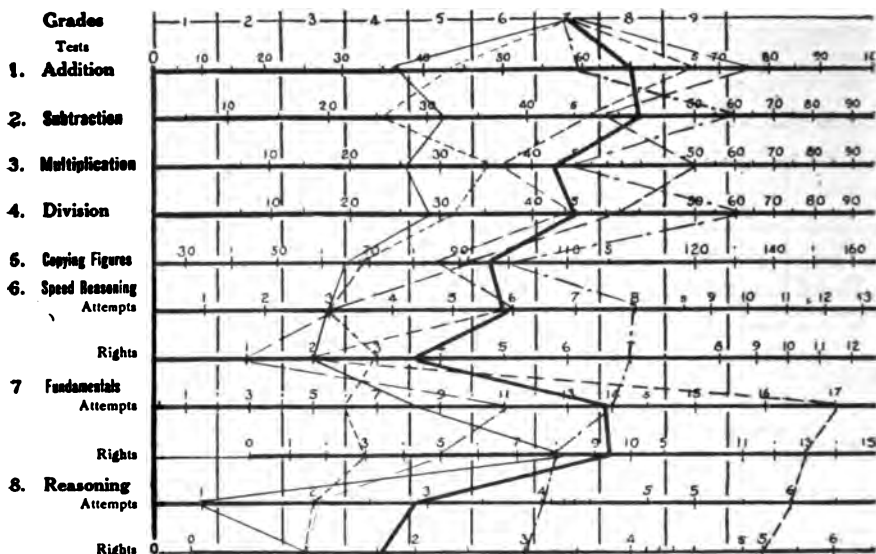


Fig. XXXI

Relation of individual scores to grade average. The curves of the five individuals shown in the previous figure are here drawn (light lines) on the same sheet with the curve of the average scores made by the whole class (heavy line). It is the blind struggle of the teacher to overcome the peculiarities of individual development shown in these curves that is the cause of the inefficiency and burden of present methods. From a 7B class in one of the best schools tested.

### Records of Growth

More important than mere records of achievement are records of growth. When the tests are given at the beginning of the year and at intervals during the year and at its close, two records drawn upon the same sheet disclose at once the nature of the changes that took place. Such studies of growth as have been made have proved that children are as variable in their growths as in their achievements. For instance, in Fig. XXXII are given the records of two individuals in the same school and class in both October and May tests.<sup>1</sup> One girl, B, has made a phenomenal growth. At the beginning of the year she knew she was to have but a single year in the school, and, appreciating her opportunities, made the most of them. The other girl, A, was less fortunate in her natural endowments, both mentally and physically, and exhibited an entirely different attitude toward her work. The difference in the curves tells the stories plainly.

<sup>1</sup> Through the kindness of Miss Margaret Eves, Supervisor of Elementary Mathematics, Ethical Culture School, New York City.

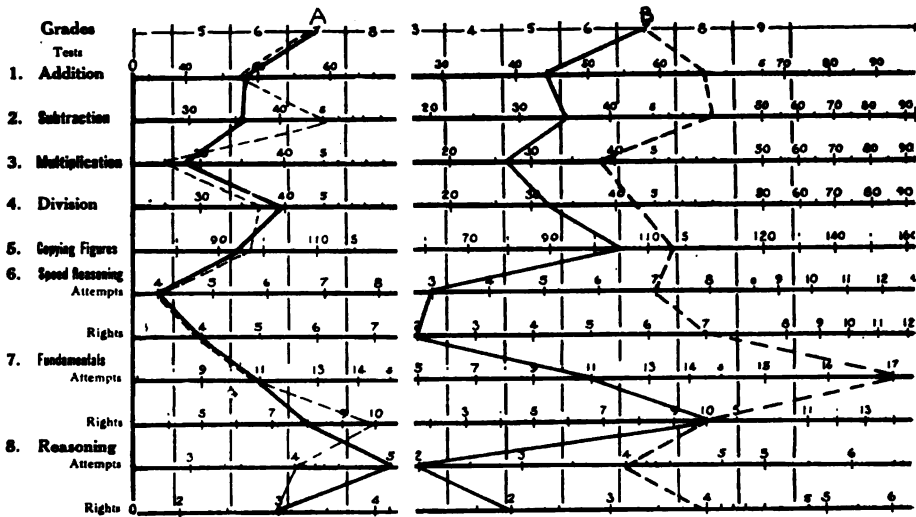


Fig. XXXII

The records of two girls in the same school and class. Solid line, October record; dotted line, May record. The differences between the two lines show the growth for the year.

### Special Devices Not Essential

It must not be supposed, however, that the use of standard scores is limited to special tests and trained examiners. The resourceful teacher will adapt the general method to ordinary classroom practice. Standard scores not only afford definite objective goals toward which to work but are also guides as to the amount of work that may reasonably be expected of the children. The scores in Table XXXVI should be translated into words. Thus: at the end of the year's work, an eighth-grade child should be able to copy figures in pencil on paper at the rate of 117 figures a minute; to write answers to the multiplication combinations at the rate of forty-nine answers per minute; to read simple one-step problems of approximately thirty words in length and decide upon the operation to be used in their solution at the rate of eight examples per minute with an accuracy of 90 per cent.; to work abstract examples of approximately ten figures (twice as many for addition) at the rate of 14.4 examples in twelve minutes, with an accuracy of 70 per cent.; to solve two-step problems of approximately ten figures in length at the rate of five in six minutes with an accuracy of 75 per cent. Further, once the idea of standard scores and individual attention is grasped, the teacher will be able to devise many simple tests of his own. The three things to be observed are: A fixed time allowance and uniform conditions for all; tests long enough to keep all busy during the entire period, and the use of the individual records in place of grade averages. Individuals

at both extremes of the class distribution need the teacher's special attention.

### Diagnosis of Defects in Course of Study

The grade averages from a school or a system may also be plotted on the comparative graph sheet. The graphs of the New York scores are shown in Fig. XXXIII. The general characteristics previously described are very evident. When all the classes of a city show such general characteristics, the fault lies in the course of study, or in the way it is administered. When, however, there are variations from grade to grade, or from school to school, the differences are caused by local conditions, usually the ideas or abilities of the teacher. Two illustrations, confirming also previous discussions, will be given.

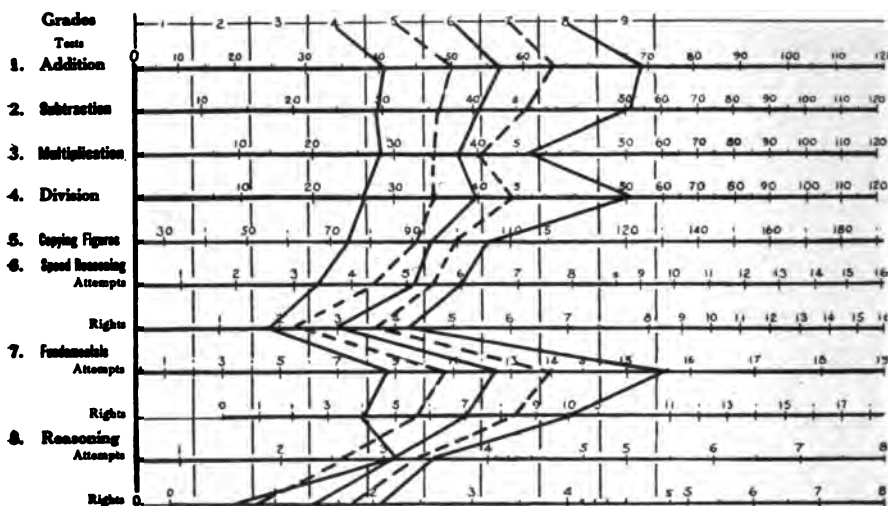


Fig. XXXIII

Graph of grade averages from the New York schools to show characteristics of the course of study. The overemphasis of the abstract work and the neglect of the reasoning are apparent at once.

In Fig. XXXIV are shown the graphs of two seventh-grade classes, one from a private school in New York City whose name the writer is not free to give; the other from one of the best of the New York public schools tested. It will be seen that the products of these two schools are very different. The private school makes every effort to motivate the children's work and the drill is incidental. The graph shows low scores in the tables and abstract work, but high scores in reasoning and an unusual degree of accuracy. The exact reverse is true of the public school. Both show lack of balance, and while, of the two, it is probable that the product of the private school has a lower time cost, and a greater

social value, it is also probable that further practice to bring the scores to standard would be of benefit. It is particularly to be noted, however, that in these two records is another proof of the relations between reasoning and speed and accuracy discussed above.

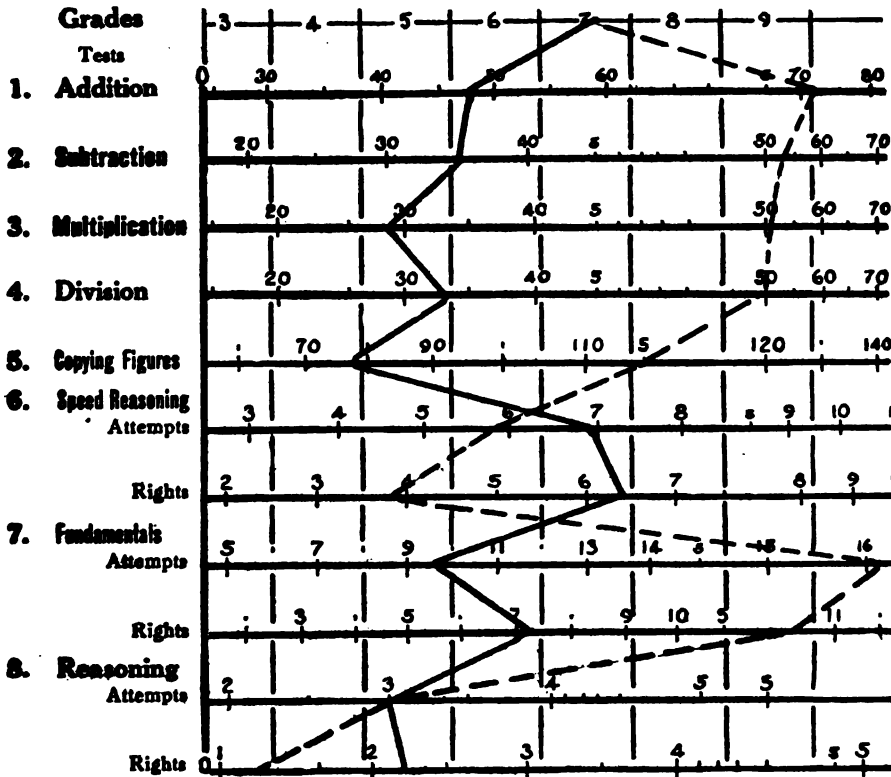


Fig. XXXIV

Comparison of the work of two schools. Solid line from the records of a 7th grade class in a New York private school; broken line from the best New York school tested. One is strong in reasoning; the other in abstract work. Neither are balanced. Both represent extreme and opposite ideas as to the proper course of study.

In Fig. XXXV are given the records of two selected 6A classes from New York schools. One school has lower scores than the others in the tables, but the scores of the second are better balanced and the elemental abilities are better organized. It is to be noted particularly that, in Test 7, it is not the school with the high score in the tables, but the one with the balanced development, that makes the better showing. In this case the difference is probably partly due to the difference in the children that attend the schools. The better school has vigorous Ameri-

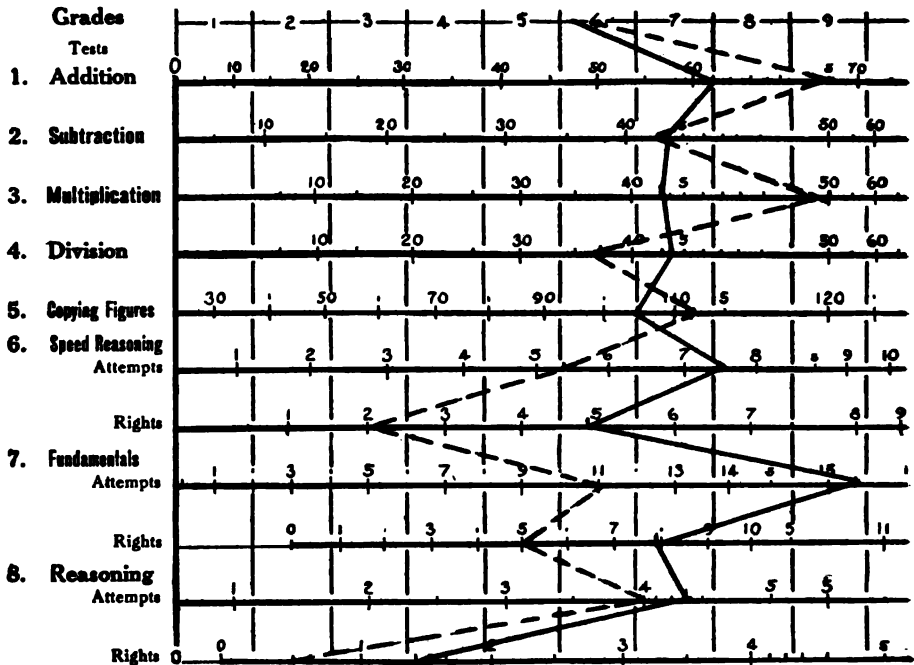


Fig. XXXV

Two 6A classes from New York schools—one having American children (solid line); the other, largely children of foreign parentage (broken line). The school with the higher scores in the combinations has nevertheless the lower scores in the important tests. Course of study and methods of work probably unsuited to the needs of the children.

can children; the other, poor children of foreign parentage. It is where such conditions exist that measurement and standard scores furnish the one true basis for proper adjustments of the daily programs and of courses of study; it is just here that drill is useless; that waste of the few precious years of school life is most to be deplored.

### Standardization Possible

A final illustration of the use of the comparative graph will be given. In Fig. XXXVI are shown curves drawn from the September and May records of a class in a Michigan school. In view of the preceding discussion it is a pleasure to be able to present proof that "standardization" of results is possible, but it is only fair to add that, while the grade averages fall nicely into line, the individual variation was still a troublesome problem.



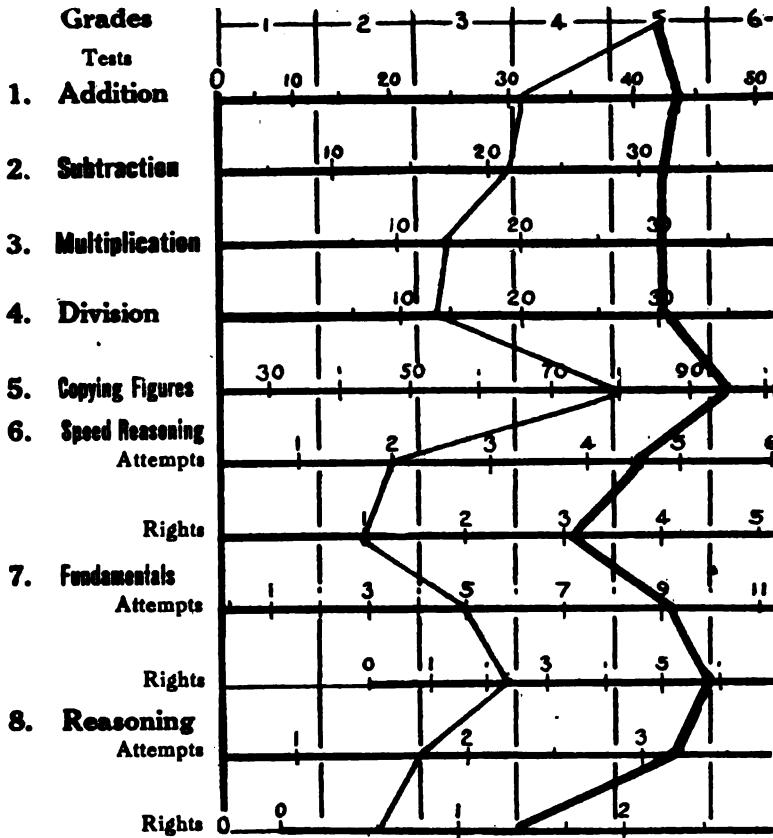


Fig. XXXVI

Record of a year's work with standard scores. The light line shows the standing of a fifth-grade class at the beginning of a year. The heavy line, the standing at the end of the year. The year's work has produced a good growth and the class is "standard" in everything except reasoning. From the records of the Liggett School.

#### Test of the Arithmetical Abilities of Certain Employees in a Large Department Store

In the use of any standard an important consideration must be the value of the thing standardized. Particularly is this true in mental measurements where the quantities measured are very intangible. In the Courtis Tests, for example, the abilities tested are recognized by both teachers and children generally as being those developed by the arithmetic work, but whether or not they are the abilities that should be developed by work in arithmetic to make that training of practical value in social activities is quite a different question.

The general abilities measured by the Courtis Tests are two: (1) ability to perform simple computation, and (2) ability to "reason." There is, perhaps, no question as to the essential nature of the first ability; the consensus of social opinion as expressed through many channels is that every individual needs as part of his mental equipment a certain degree of skill in such arithmetical work as that of Test 7. On the other hand, opinions differ widely as to whether or not the ability to complete the first fifteen examples of that test in twelve minutes without making errors in more than four examples, constitutes a reasonable degree of speed and accuracy to set up as a standard for the final product of the public school training in Arithmetic. Such a question, however, is no more a matter to be settled by opinion than is a question of size of engine needed to do a given piece of work. For satisfactory results the answers to both questions must be based upon measurement of actual conditions.

For the ability to reason the case is similar but the need for measurement much more urgent. Reasoning is itself undefined, and the work of many psychologists has made it evident that the activity called reasoning in one situation may be totally unlike the activity in a second judged to be precisely similar to the first. But the ability to grasp a situation, and to so select and adjust the essential elements as to produce a desired change is in every field of work the ability of highest value. Arithmetic has long been considered to develop such reasoning abilities. In each problem a situation is presented. To solve the problem the child must be able to grasp the situation, to make the proper adjustments called for by the fundamental nature of the problem. The results from this investigation prove that the ability to reason in arithmetical problems develops somewhat under school training. But is this so-called ability to reason the same as the ability called reasoning out of school? Does the ability developed in school transfer to the activities of daily life? If it does not, then a part of the arithmetic teaching is waste effort.

The nature of the work given in Tests 6 and 8 is similar to that of the simplest reasoning work in arithmetic. The distinctive elements of reasoning work—the analytical and selective phases—are emphasized in the tests, and the purely mechanical elements avoided. It would seem, therefore, that these tests should measure the more valuable elements of school training in reasoning. Has such ability a social value?

In the earlier sections of this report not only is more reasoning work advised for the New York schools, but a study of social and industrial conditions from this point of view, and an adjustment of the course of study upon the results of such an investigation is recommended. To make clear the nature and possibilities of such work as well as to determine as far as possible whether or not the proposed standards, derived only from the measurement of school children, were reasonable standards from a practical point of view, the measurement of a small group

of adults actively engaged in commercial work was attempted. The results are given as suggestions merely; their intrinsic value is small. The experiment was hastily planned and hastily executed; the control of essential conditions was poor. Nevertheless, results of interest were secured, and if the data are interpreted at their suggestive, rather than at their face value, the study forms an important addition to the report.

Through the kindness and co-operation of Mr. W. D. Earnest, chief of cadet staff, and Principal of the John Wanamaker, New York, Commercial Institute, the consent of Mr. Lynn, General Manager of the John Wanamaker's Department Store, New York City, was secured to a test of fifty employees of the company. As this meant setting free fifty members of the working force for half an hour on each of two mornings in the vacation season when the force is already reduced to its lowest limit, it will be seen that the company's consent to the test entailed both expense and inconvenience. The writer is glad to have this opportunity to express his appreciation both of favors shown and of the public spirit which alone can make such studies possible.

The group of employees was tested precisely as if they had been a class of children in school, except for a few necessary preliminary explanations. The group met in one of the company's school rooms, and were tested by one of the force of trained examiners.<sup>1</sup> Exactly the same tests and time allowances were used as with the children, and the same procedure in conducting the examination, and in scoring and tabulating the papers, was followed throughout. Forty-one complete records were eventually obtained.

The subjects represented seven different types of positions in the store, and in number were as follows:

Auditing Department .....	5
Bill Clerks .....	5
Cashiers .....	8
Clerks .....	13
Salesmen .....	7
Typists .....	3
Total.....	41

Two of the clerks and six of the salesmen were men. The average age of the group was approximately 19 years, ranging from 15 years to 30 years. The average term of service with the company, except for the group from the auditing department, was a little more than two years, ranging from two months to five years. The girls from the auditing department are products of the store's own training, and the term of service for them ranged from 8 to 14 years. The wages paid any member of the group is determined by position and term of service, not by position alone. The amounts varied from \$5 to \$15 per week. Of thirty-six who reported the last grade attended in the public school, 7 gave high school, 13 8B and 16 8A to 7A.

<sup>1</sup> See page 32.

It will be seen, therefore, that the group represents, for the most part, merely the product of the New York Public School course in arithmetic plus two years' actual experience in such positions as are open to those without special training. There is, of course, the selective action of the store upon the school product to be considered, and the results show, if nothing else, the degree of ability in the fundamentals of arithmetic that is needed to obtain and hold such low-salaried positions, so far as such abilities are factors.

It was not possible to attempt more than a general study of the work of the different groups. The cashiers do little more than make change, the salesmen and clerks have a little computation work in handling sales slips, store records, etc., the bill clerks have the most varied work, and work demanding the most intelligence and judgment, the members of the auditing department have the largest amount of abstract work, but it is routine in character. The auditing department, and to a lesser extent the bill clerks, are thus the only positions in which arithmetical ability would have more than a slight influence in determining the fitness of an applicant. In none of them, however, would arithmetical ability be a major factor.

With these facts in mind the reader should attempt to predict the scores made by the various groups, if for nothing else than to realize that no knowledge of the arithmetical needs of various types of workers exists. The individual scores made by the auditors, bill clerks, and five of the cashiers selected on a basis of length of term of service, the averages for each of the groups, and finally the 8th grade standard scores and the difference between each average and the standard are given in Table XXXVII. In Fig. XXXVII the differences from the standard are shown graphically, the scales for the various figures being drawn so that (approximately) equal distances from the standard line represent relatively equal differences in the different tests. That is, a difference of one example in Test 6 corresponds approximately to a difference in score of 30 figures in Test 5.

The results show that addition is the ability most generally affected by the work in the store, although there are marked changes in subtraction, and in the abstract work as well. Multiplication and division are very slightly affected, and in speed of copying figures the deviations from the average are slight. In Test 7, abstract work, the agreement with the standard is close except for the two types of work in which the greatest amount of practice occurs, the bill clerks and the auditors. In general, therefore, on the basis of these results, a child attaining the standard scores in the tests for abstract work would have at least an average equipment with which to enter upon business life.

The results in the reasoning tests are quite uniform and extremely low. This may mean (1) that the tests themselves are poor measures of arithmetical reasoning, (2) that the reasoning in arithmetic and the reasoning in the work of the store are two distinct and unrelated types,

Table XXXVII—Scores Made by Certain Employees in Wanamaker's Department Store, New York City

## Part A. Individual Scores

POSITION	TEST 1	2	3	4	5	6		7		8		YEARS OF SERVICE
						Ats.	Rts.	Ats.	Rts.	Ats.	Rts.	
<b>Auditors:</b>												
A.....	90	70	32	40	125	4	2	11	8	2	2	10
B.....	120	118	57	66	177	5	1	38*	34*	2	2	10
C.....	89	97	55	80	128	6	3	16	12	3	1	14
D.....	98	90	48	48	122	6	3	23*	13*	1	1	8
E.....	100	57	55	40	90	4	0	17	10	2	0	10
<b>Bill Clerks:</b>												
A.....	91	55	55	57	125	6	6	19	13	2	2	3.5
B.....	80	48	40	41	105	4	2	16	14	1	1	2
C.....	80	65	45	50	110	5	4	16	15	3	2	3
D.....	87	51	52	58	138	6	5	21*	19*	3	3	2
E.....	98	55	32	30	123	4	3	17	13	2	2	2.8
<b>Cashiers:</b>												
A.....	72	40	40	60	122	4	3	14	11	3	2	3.5
B.....	80	60	40	60	135	4	1	9	5	1	1	3
C.....	85	45	40	42	135	4	1	8	6	0	0	1
D.....	63	45	40	40	135	3	2	17	14	3	2	8 mo.
E.....	66	50	55	43	113	6	4	17	10	2	1	8 mo.

## Part B. Average Scores

POSITION	TEST 1	2	3	4	5	6		7		8		YEARS OF SERVICE	NUMBER OF PERSONS
						Ats.	Rts.	Ats.	Rts.	Ats.	Rts.		
Salesmen.....	68	53	40	51	100	4.1	2.6	12.9	7.7	2.0	0.9	2.7	7.2
Cashiers.....	75	45	37	56	123	4.0	1.9	12.4	7.7	1.6	1.2	1.8	8
Typists.....	78	45	44	48	131	3.0	3.0	14.7	9.7	2.0	1.3	2.2	3
Clerks.....	81	56	49	53	117	4.8	3.0	14.1	9.7	2.1	1.5	1.6	13
Bill Clerks.....	87	55	45	47	120	5.0	4.0	17.8*	14.6*	2.2	2.0	2.7	5
Auditors.....	99	86	49	55	128	5.0	1.8	21.0*	15.4*	2.0	1.2	10.4	5
Entire Group.....	84	56	45	55	119	4.9	3.2	14.4	10.4	2.4	1.8	3.1	41

## Part C. Deviations of Average from Standard Scores

POSITION	TEST 1	2	3	4	5	6		7		8	
						Ats.	Rts.	Ats.	Rts.	Ats.	Rts.
<b>Standard Scores:</b>											
Eighth Grade.....	63	49	49	49	117	7.8	7.0	14.4	10.0	4.8	4.0
<b>Deviations from Standard:</b>											
Salesmen.....	+ 5	+ 4	- 9	+ 2	-17	-3.7	-4.4	-1.5	-2.3	-2.8	-3.1
Cashiers.....	+12	- 4	-12	+ 7	+ 5	-3.8	-5.1	-2.0	-2.3	-3.2	-2.8
Typists.....	+15	- 4	- 5	- 1	+14	-4.8	-4.0	+ .3	+ .3	-2.8	-2.7
Clerks.....	+18	+ 7	0	+ 4	0	-3.0	-4.0	- .3	+ .3	-2.7	-2.5
Bill Clerks.....	+24	+ 6	- 4	- 2	+ 3	-2.8	-3.0	+3.4*	+4.6*	-2.6	-2.0
Auditors.....	+36	+37	0	+ 6	+11	-2.8	-5.2	+6.6*	+5.4*	-2.8	-2.8
Entire Group.....	+21	+ 7	- 4	+ 6	+ 2	-2.9	-3.8	0	+ .4	-2.4	-2.2

\*Computed scores. Entire test finished in less than time allowed.

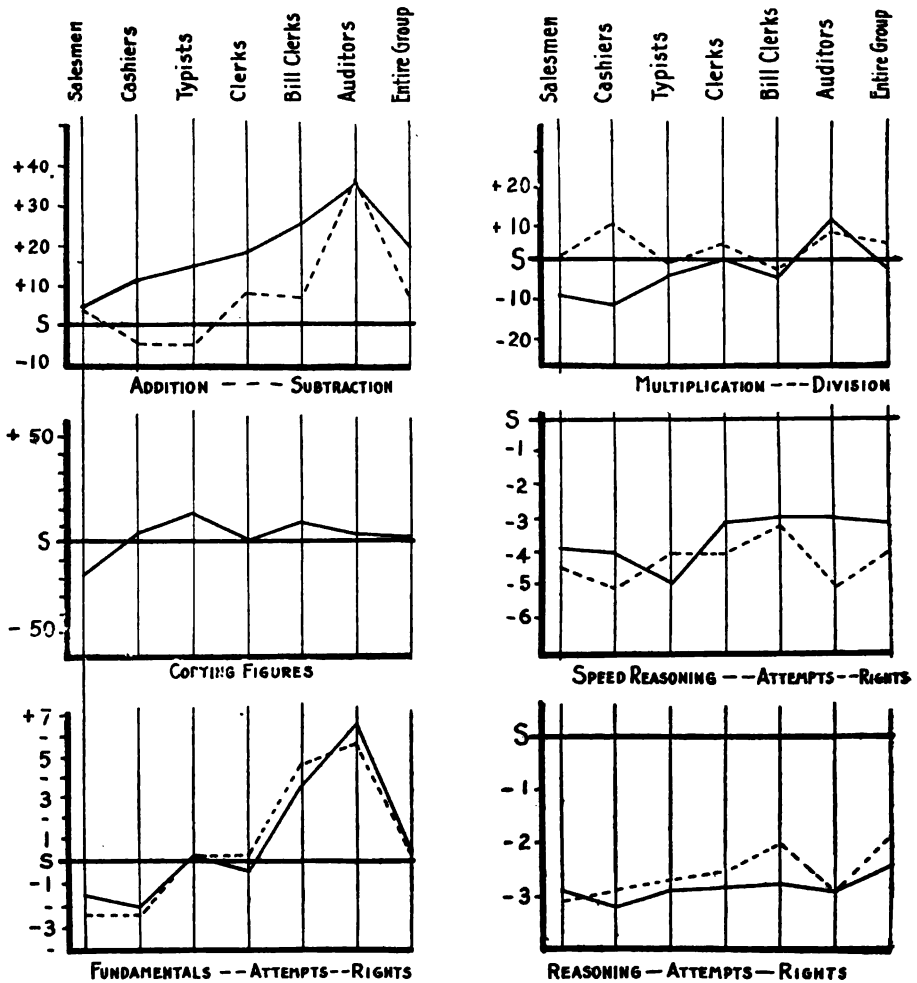


Fig. XXXVII

and (3) that the subjects of the experiment are engaged in work of such routine character that little demand is made upon their reasoning abilities. Probably all three of these statements are true in part. Fortunately, as far as the tests are concerned, measurements of many schools have proved that some schools develop the abilities measured in Tests 6 and 8.<sup>1</sup> Such schools are usually the smaller, more progressive schools. On the other hand, the large school systems quite generally have low scores in reasoning. The tests unquestionably measure the abilities concerned in reasoning work in arithmetic, but that those abilities are of value needs demonstration. Any condemnation of the tests on the basis

<sup>1</sup> See page 103.

of these results, however, must carry with it the condemnation of the problem work of the present courses in arithmetic, most of which is much more complex than the simple work of these tests. The results of the present investigation emphasize again the need for a careful study of the work of the schools both in relation to social conditions and from the standpoint of the evaluation of the changes which are actually being produced in the schools. What ought to happen when a child learns to reason in arithmetic? What really does happen under present conditions?

In view of the previous discussions it is interesting to note that the bill clerks characterized by Mr. Earnest as holding positions calling for the greatest exercise of individual judgment have the highest scores for examples right in the reasoning tests and show the greatest accuracy in Test 7, thus confirming the conclusions reached from the results from the school children. In this connection it should also be noted that the auditors who made the highest scores in abstract work are the most inaccurate in the reasoning, although attempting as many examples as any other group. The antagonism of drill and reasoning has also been previously noted.

An interesting case of possible transfer of ability is seen in the scores of the typists. Their average speed in copying figures exceeds that of the other groups, and their accuracy in both the abstract and reasoning work is high. Speed and accuracy are essential characteristics of all satisfactory copying work on the typewriter.

An interesting set of scores are those of the cashiers. Their work in the store is almost wholly mental. Any effect on their scores is apparent only as an increase in addition and multiplication. Their scores in the other tests are low in spite of the fact that the two latest additions to the force, individuals D and E in the table, have had two or more years in the high school, and made the highest scores of the group. The effect of mental work in arithmetic is one of the debated questions. The results do not agree at all with many opinions on the subject, and suggest that this, too, needs experimental investigation.

The results throw some light on the question of possible speed in the abstract work. In Test 7 two of the auditors finished before the time, one of them completing the entire nineteen examples in six minutes and having but two incorrect. In the tabulations the scores of this individual are computed for twelve minutes and used in place of the actual scores. Similar computations were made in the case of three other individuals who completed the work within the time limit. Compared with 38 examples attempted and 34 right the standard score, 14.4 Attempts, 10.0 Right, is not excessively high.

In fact, so far as these adults are representative in their abilities the standard scores, except in reasoning, would seem to be about right. Such standards are not meant to be goals that can be reached only by

unusual ability or extraordinary effort, but rather minimum and optimum scores.

**Table XXXVIII—Distribution of Scores on the Basis of Accuracy in Test 7**

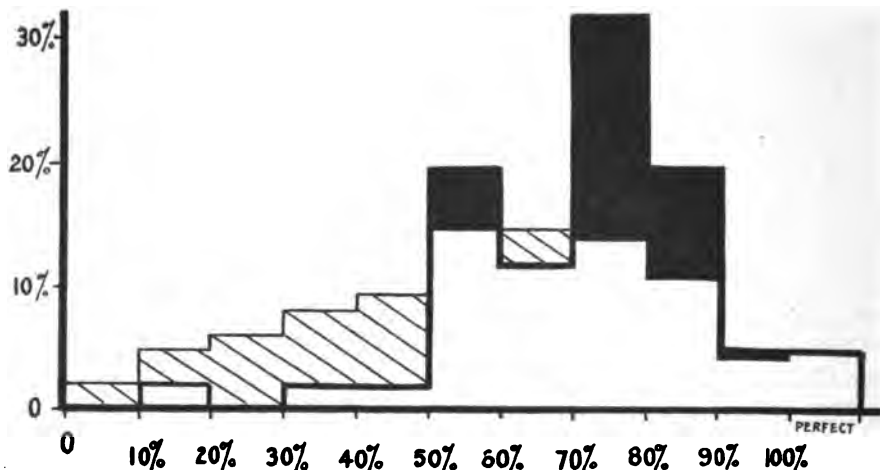
The score in accuracy is the per cent. the examples right are of those attempted. 75% means an accuracy of from 70% to 79% inclusive.

GROUP	No. IN GROUP	CLASSES											
		100%	95%	85%	75%	65%	55%	45%	35%	25%	15%	5%	0%
Employees.....	41	2	2	2	8	13	5	8	1	1	1	.....	.....
Per Cent. of Total.....	.....	5%	5%	20%	32%	12%	20%	2%	2%	.....	2%	.....	.....
Children <sup>1</sup> .....	27,171	5%	4%	11%	14%	15%	9%	8%	6%	5%	2%	2%	5%

<sup>1</sup> From Table XXV, page 79.

Of the 41 individuals in the group of adults, 2 or 5% of the group had perfect scores, 5% also had scores whose accuracy was from 90% to 99%, 20% of the group were of 80 to 89% accuracy, and so on. In the table is given also the corresponding figures for school children. The results are shown graphically in Fig. 7.

### FREQUENCIES



**Fig. XXXVIII**

Comparison of distribution of scores for accuracy of work in Test 7 for two groups, one of 41 employees at Wanamaker's, the other of 27,171 New York school children in all grades from 4A through high school. Horizontal scale shows accuracy of work. Vertical scale indicates the number in each group, expressed as per cent. of total membership of the group, making each degree of accuracy. The part in white is common to both groups. The part in black is the excess of the employees over the school children. The shaded part represents the school children that fall below the employees. Either the influence of commercial work, or the selective action of the store, has eliminated the grossly inaccurate. The average accuracy of the group, 72 per cent., is slightly better than that called for by the standard scores.



The results of this test have a bearing also upon the question of accuracy. In Table XXXVIII and Fig. XXXVIII are given the distribution of the individual scores in accuracy in Test 7. It should be noted that the distribution of the school children is a normal distribution covering the entire range of the scale. The distribution of the other group, however, has been skewed toward the upper end of the scale. Very few fall below the 50 per cent. point, 84 per cent. of the group are included between the limits of 50 per cent. and 90 per cent. as compared with 49 per cent. of the children. This may be due to the selective action of the store itself, or to the practice effects of the commercial work, or to both. In any case it is evident that gross inaccuracy will not be tolerated.

The range of variation, however, is greater than the writer expected, and the average score, 72 per cent., surprisingly low. This probably means that the conditions under which the tests were given emphasize speed, and as speed and accuracy are antagonistic the results show greater inaccuracy than the same individuals would show if working at normal speed. This suggests that in future tests of this character it would be better to warn the subjects that in the longer tests they should not hurry, as accuracy will be considered as well as speed.

However, accepting for speed and accuracy the average of this group as representative of the degree of ability demanded by the store of those who apply for positions, it is possible to measure the efficiency of the public schools in terms of this measure. In Test 7, for instance, the average score of the adult group was 14.4 examples attempted and 10.4 examples right. Of the 1,187 8B boys and 1,053 8B girls measured, 610 or only 51 per cent. of the one, and 596 or only 56 per cent. of the other equal or exceed these records. On this basis alone, therefore, the store would reject nearly one half of even those applicants who had completed the full grammar school course.

A suggestive result is the close agreement of the two distributions at the upper limit. It may well be that the extreme accuracy of absolutely perfect work or even of from 90 per cent. to 99 per cent. is due to the possession by the individual of peculiar mental characteristics, and therefore beyond the reach of training. If so, however, a psychological study of such individuals might yield knowledge that would enable the school to train each individual to at least his highest accuracy. It seems strange that so important a field as the psychological activities of the classroom have been so long neglected by the psychologists.

The most important conclusion to be drawn from the preceding discussions is that although the individual variation shown in these results is of the same character as that found in the scores of children, apparently for many of the tests the range of variation is much smaller. That is, a class of fifty bill clerks, for example, selected as of equal ability by the head of the department would show less difference between the highest and lowest scores made than a class of fifty children selected as of equal ability by the promotion machinery of the school.

The size of the different groups is, of course, too small to admit of any valid judgments as to the range of variation, but as soon as definite degrees of ability are proved by measurement to be required for given social and industrial positions, the lack of standards which now exist in school work in arithmetic will be appreciated at its true importance. This test apparently shows plainly that greater ability is required for some positions than others, and that the degree of ability is changed by practical experience. On the other hand, the range of variation that is found even in these small groups proves that arithmetical ability is but one of many factors in determining the efficiency of an employee. The slow inaccurate worker, by conscientious checking, may produce results superior to those of every other member of the force, while the most gifted and best trained employee as far as arithmetical ability is concerned may be utterly unreliable and worthless because of his low ideals. That is, the supreme work of the schools should be to develop in children those ideals of personal responsibility and service that make for both growth and efficient discharge of social duties. It is unfortunate that our schools are not organized as yet on such a basis. At the same time it should not be forgotten that the efficiency of the individual inspired by even the highest ideals is conditioned by his mental equipment. If all the auditors, for example, were actuated by the same worthy motives it is extremely probable, in view of these results, that their relative value in the auditing work could be approximated closely from a comparison of their scores in these tests. In other words, in this case, as in so many other of the points discussed in this report, the results but serve to prove the possibility of, and the need for, more extended and more detailed investigations of the same kind.

### Summary

From the discussions in this and in the preceding section it should be evident that the teaching of even the fundamentals of arithmetic is a much more complex process than has been thought. That all the defects of present conditions can be immediately remedied it is not reasonable to suppose. The methods and tests used in this investigation and the standards set represent little more than the first attack upon a problem that must engage the best efforts of school men through many years. At the same time the investigation is a first attack, and the results indicate clearly both that efficiency is dependent upon a more complete knowledge of what is actually happening to children as they pass through our schools, and that the comparative test is a valuable tool for educational investigations.

Whether or not it is possible or expedient to develop "standard" ability in all children ought not to be decided by opinion but by trial. The experience of the writer through several years has yielded no data upon which to base predictions, either that present conditions cannot be changed

or that "standardization" has any stultifying effects upon the teacher. On the contrary, the strengthening influence of work undertaken to remedy defects revealed by measurement has been most marked and the response of progressive teachers to the possibilities of clear aims, definite knowledge of the defects of individuals, and a means of measuring the effects of teaching effort has been most gratifying. The possibilities for further development of the work in arithmetic and in other subjects seem very great.

## Section VII

### Standard Scores in Relation to Supervision and Administration

#### Introduction—Point of View

Throughout the preceding sections the point of view has been mainly that of the teacher. The results from standard tests, however, are of importance also from the point of view of supervision and administration. While the use that may be made of much of the material is determined wholly by the interests of the person considering the results, throughout the discussions of this section the conclusions emphasized will be those of value to the principal, supervisor, and superintendent.

It should be remembered, however, that much of the work, particularly the final preparation of the report, was done under conditions of haste and pressure that prevented the close analysis and study the writer had hoped to be able to give to the data. Only the grosser features of the results can be indicated and the illustrations in this section are illustrations merely—suggestive of problems in need of study or indicative of methods that might be used to advantage. The complete possibilities of the data secured should not be measured by such brief exposition of their more salient features.

#### Measurement of Efficiency of Teacher

The active agent in education is the teacher. In the last analysis the success of all movements for reform, of all efforts toward greater efficiency, is absolutely conditioned by the extent to which the coöperation of the teacher is secured. The education or elimination of weak and incapable teachers has heretofore received too little attention from school authorities, probably because available methods of judging of the ability of teachers have been no better than those employed in determining the fitness for promotion of the child. Measurement of children's ability with standard tests, however, furnishes also a measure of the teacher's ability. For of two teachers working under equal conditions, the one whose class shows the greater growth is the more able. It is a matter of regret that no illustration of this point can be given; but in exactly

similar fashion a single test of a school will disclose at once any grades within the school whose work is out of the ordinary.

For instance, Fig. XXXIX shows the graph of the grade averages from one of the poorer schools tested. For comparison the results from a Michigan school in which standard tests have been used for several years are also shown. The irregularities in the curves of the New York school indicate very clearly that, in the fifth and sixth-grade classes, poor work is being done. The curves are consistently depressed in all the simple tests and in the others, although the curve for examples attempted may rise, that for examples right falls. The most probable cause for such consistent results is a poor teacher in the fifth grade, but it is impossible to tell without a knowledge of the conditions in the school. An epidemic of contagious diseases may have led to many prolonged absences in these grades. But with a knowledge of conditions it is perfectly possible to determine the exact cause, and, in the case of poor teaching, the curves form an impersonal record of the result that carries weight in any dis-

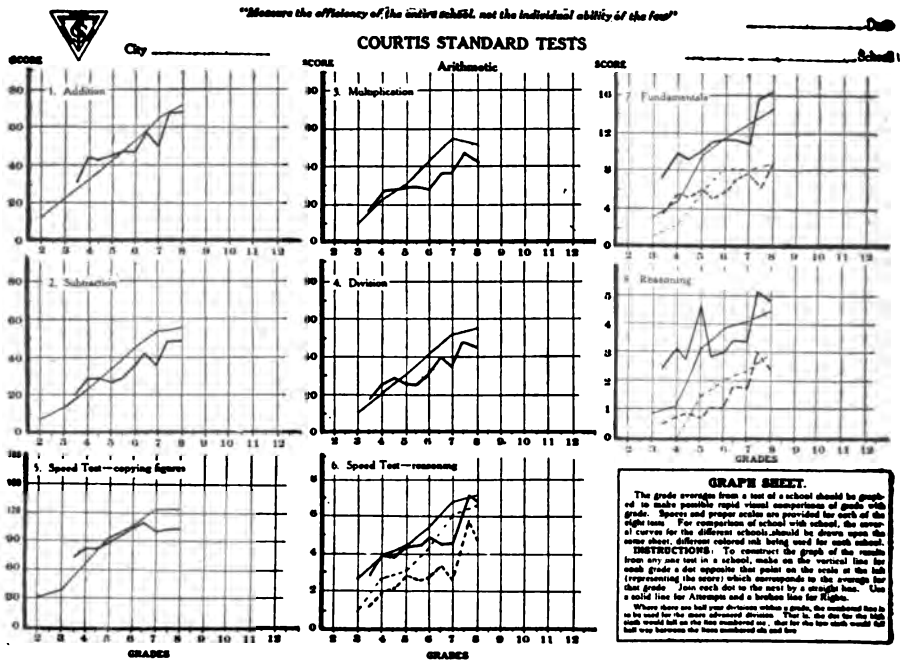


Fig. XXXIX

Graph of the grade averages of two schools. Heavy lines a New York public school; light lines a Michigan school in which standard tests have been used for several years. Solid lines, attempts; dotted lines, rights. In the New York school the irregularities in the curves are indications of inefficient conditions, needing attention of principal or supervisor. Probable cause—able teachers in fourth and eighth grades; poor teachers in fifth and sixth.

cussion of the situation with the teacher concerned. The knowledge that the effect of work done can be measured and compared with the effects of similar work by others is always a powerful stimulus for workers in any field. The principal that does not avail himself of this use of the data, from comparative tests, misses an opportunity to check his own work; for it is distinctly the duty of the principal to see that the causes of such irregularities are removed at the earliest possible moment.

The problem of inefficient teachers must be a serious one so long as they are continued at work year after year. In a test of a large school there may be marked variation in scores from class to class in the same grade. While, as pointed out in the previous section, the actual difference between the best and the poorest classes is small for arithmetic when compared with the range of individual variation, the total effect of a poor teacher upon a class may be very bad. In Fig. XL the upper and lower line of each shaded portion was made by plotting the average of the highest and of the lowest class in each grade of a large Manhattan

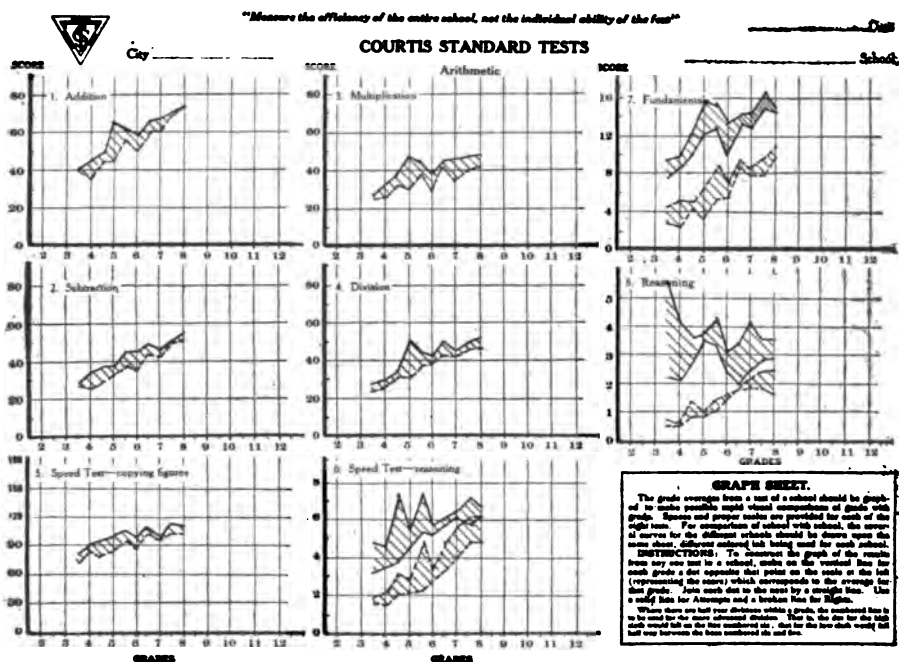


Fig. XL

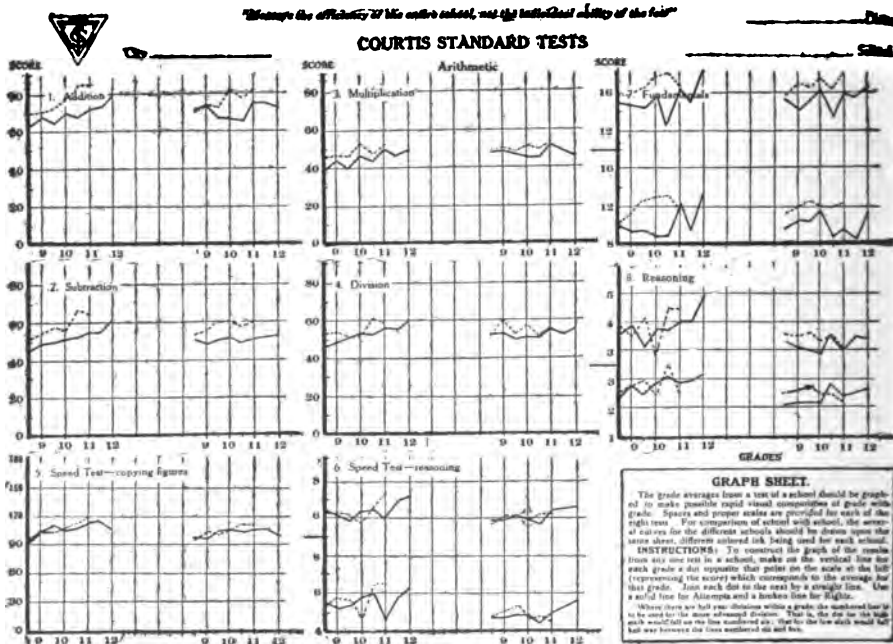
Variation in the achievement of classes of the same grade and school. The upper and lower boundaries of the shaded portions were drawn by plotting points to represent the grade averages of the best and worst sections of each half grade and drawing lines through all the points of each kind. The record of any class will fall somewhere between the limits for its grade. The amount of the variation shown is much greater than efficient conditions would warrant. From one of the best New York schools.

school. The shaded portion, therefore, represents the range of variation in the achievements of the different classes. Such conditions are indefensible from the standpoint of efficiency and but serve to emphasize the impossibility of controlling conditions without standard measures of results.

### Comparison of Schools

Such general graphs of grade averages can be used to compare the results from schools in which different methods are employed. Previous mention has been made of the inclusion in the test of schools examined of two high schools, one a general high school and the other a commercial high school. The results from the tests in these schools afford a basis for interesting illustrative comparisons, although the data are insufficient, and the conditions of the comparisons too crude, to warrant any final statement.

The results are presented graphically in Fig. XLI, boys and girls separately. The curves for boys are drawn at the left of each plot, those for girls at the right. In Tests Nos. 6, 7, and 8 the results in attempts are shown in the upper part of the figure; rights below. The



**Fig. XLI**

Comparison of a general and a commercial high school. Solid line, general high school; dotted line, commercial high school. Lines at the left, boys; at the right, girls; lines above in Tests 6, 7, and 8, attempts; below, rights.

grade averages from the general high school are represented by the full lines; from the commercial high school by dotted lines. The pupils were examined in their "official class," and, while these do not exactly correspond to grades 9, 10, 11, and 12, they do so more closely than to any other classification that could be adopted. It will be seen that the arithmetical abilities of boys in the first term of the commercial high school are in many tests superior to those in the corresponding classes of the general high school, although this is not true of the girls. So far as differences in the work of the two schools can be observed, the work of the commercial high school produces marked differences only in the addition and subtraction speed tests and in Test 7.

Since, at the time the tests were given, the 9A classes had had but two months' work in the commercial high school, this would seem to indicate that boys electing the commercial work have relatively a higher initial ability in the fundamentals than those who elect the general high school work. This difference should be kept in mind during the discussion which follows.

A measure for comparing the work done by two schools is sadly needed in educational discussion, and comparative tests and standard scores furnish such a measure. If the number of children per hundred reaching or exceeding a standard score at the beginning of the year is compared with similar data at the end of the year the differences show the actual effects produced by the teaching effort.

In the present instance, of course, no measures of growth are at hand, but in Table XXXIX is given by grades for these two schools the number of children per hundred who equal or exceed the standard scores in Tests 7 and 8, boys and girls separately; also the differences between the results for each grade and sex. As these two tests represent the most important tests, as well as those in which the greatest and least differences occur, they afford a good basis for judging how far the effects of the two courses differ.

It will be seen that the commercial high school course affects boys more than girls. In Test 7, attempts, the differences for boys are practically constant, and for girls decrease. In other words, the boys in the commercial high school show no greater development in speed of work than they would have done had they taken the other course, while the girls show less. In accuracy there is quite a gain. Half of the boys and a third of the girls are more accurate than they would have been had they not taken commercial work. For all the results in Test 8 the differences are insignificant. In other words, the differences in the effect of the work of the two schools are slight.

The results seem very remarkable. That boys in a general high school in which arithmetic is not a part of the course should so nearly hold their own with boys in a commercial high school, engaged in constant practical work—bookkeeping, commercial arithmetic, etc.—and preparing for a commercial life, seems very strange; especially in view of

**Table XXXIX—Comparison of the Work of a General and a Commercial High School, as Measured by the Number of Pupils per Hundred Equaling or Exceeding the Standard Scores for Each Grade**

Grades	Test 7										Test 8																				
	Number of Pupils in Grade					Attempts					Rights					Attempts					Rights										
	Boys		Girls			Boys		Girls			Boys		Girls			Boys		Girls			Boys		Girls								
	Com.	Gen.	Com.	Gen.		Com.	Gen.	Com.	Gen.		Com.	Gen.	Com.	Gen.		Com.	Gen.	Com.	Gen.		Com.	Gen.	Com.	Gen.		Com.	Gen.	Com.	Gen.		
9A	55	43	113	65		98 <sup>1</sup>	50	48	57	50	7	41	39	2	56	38	18	22	13	9	15	12	3	15	8	7	1	10	0	10	2
9B	31	22	87	24		57	45	12	71	37	34	30	27	63	45	18	9	17	8	14	12	2	8	7	1	10	0	10	8		
10A	22	19	61	37		76	26	50	74	43	31	67	35	32	67	38	31	26	0	28	15	2	13	19	3	16	11	3	8		
10B	15	22	41	40		87	45	42	80	62	18	67	17	50	64	56	6	13	7	13	7	6	8	7	1	12	5	7	5		
11A	14	23	16	37		79	26	53	66	38	28	71	21	50	66	18	48	41	21	20	18	15	3	30	21	9	16	11	5		
11B	7	22	21	39		84	63	21	81	64	17	57	55	2	62	30	32	27	21	6	0	7	17	12	5	3	10	—	7		
Average Difference.....								38			22			27		26			8			6				6			4		

<sup>1</sup> That is, 98 boys out of every hundred in the 9A Grade of the Commercial High School had higher scores in Test 7 attempts than the standard score.



the inaccuracy and low scores shown by many in both schools. The irregularities in the curves are not an indication of desirable conditions, and the lack of growth in reasoning power is not encouraging. In the lower schools unsatisfactory achievements in the fundamentals of arithmetic may possibly be excused on the ground of crowded courses and more important work; but that such conditions are not changed during the period of preparation for commercial life is not favorable to the success of the work of the commercial courses. It may well be, however, that, as long as unsatisfactory conditions prevail in the elementary school, nothing better is possible in the higher school. Evidence is not wanting that the early grades are the critical periods in the mastery of fundamental habits. At any rate, there are here many questions in urgent need of investigation and study.

### Effects of Special Classes

The gathering of data from many schools in a system as large as that of New York brings the examiner in contact with many types of schools, with great variations in method and administration. How do these variations affect the product?

Quite generally throughout Manhattan segregation of boys and girls, either in separate buildings or in separate classes in the same building, is the rule. In the larger schools of Brooklyn segregation in classes is the rule, although many mixed classes are formed. In Brooklyn also, because of the crowded conditions, there are many "part-time" classes. Further, in any school, there may be found classes for special children, the "E" classes. Some principals, however, use these as rapid advancement classes; others by their own testimony as ungraded classes for the mentally dull. Do these varying conditions affect the work of the children, and, if so, how? is a question that must be of vital concern in an efficient administration of the system.

A little consideration will make it evident that the effects from a single cause will be but one of many factors in the resultant achievement of the classes. If a direct experiment were undertaken to measure a given effect, care in the control of the conditions of the experiment could eliminate the effects of all the factors except the one being measured. In this case, however, no such control was exercised, and judgment as to the effect of any cause must be based upon slight general tendencies observed in the examination of many cases.

The general method of measuring such a general tendency is to determine the relative position of each case with respect to the average for the entire group and to combine these measures of position. For example, ninety-three classes, each of 4B grade, were examined. The average scores of these classes in Test 7, attempts, ranged from one of six examples to two of twelve examples. The average was approximately nine examples. Of these classes, five were on part time. Of these five, one

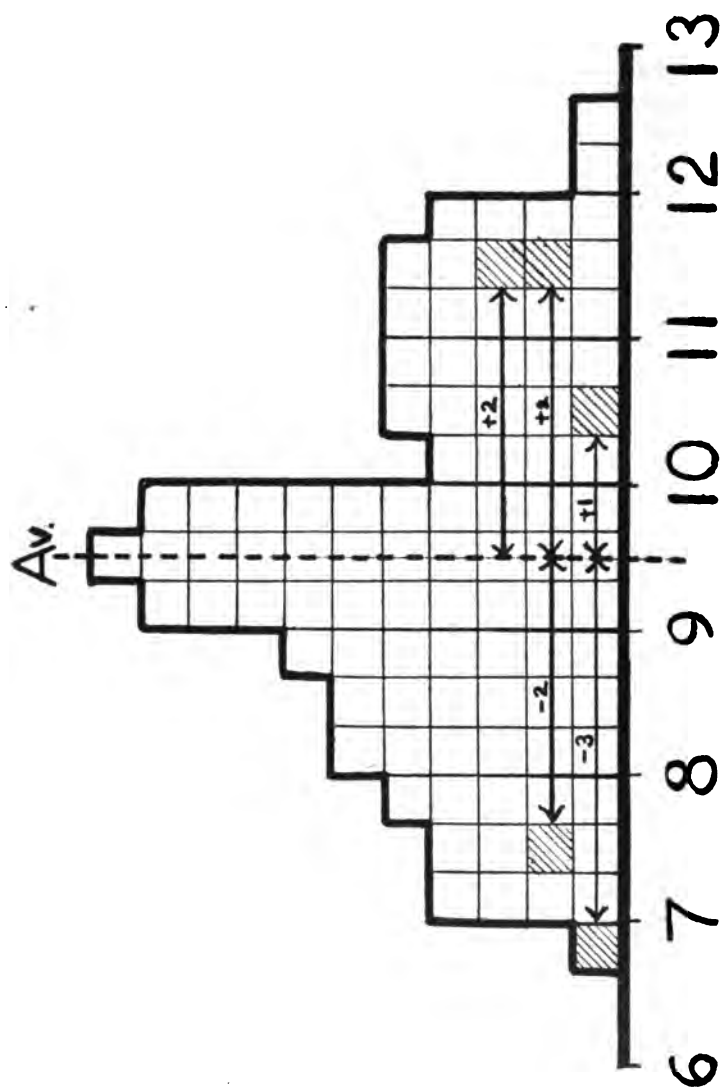


Fig. XLII

Measurement of resultant tendencies; part-time classes. The figure shows the distribution of 93 4B classes in Test 7. Each small square represents a class and stands in a position over the scale corresponding to the score of the class. The part-time classes are shaded. The position of the average score is indicated; also the differences between the average score and the score of each of the part-time classes.

had a score of six examples, or 3 below the average (nine examples) of the entire ninety-three classes. A second had a score of seven examples, or two below the average. The score of the third was ten examples, or one above the average, while the scores of the remaining two were each eleven examples, or two above. Combining these measures of relative position ( $-3, -2, +1, +2, +2$ ), the resulting measure is 0. That is, the scores of the five part-time 4B classes were so related to the average of all the 4B classes measured that the score of any part-time class selected at random was as likely to fall above the average as below.

These conditions are represented in Fig. XLII. Each class is represented by a small square in proper position with respect to the scale to represent its score. The positions of the average and of the part-time class in respect to the average are also indicated.

For nine part-time 4A classes the resultant measure computed in similar fashion was  $-13$ . In order to compare the effects in various grades this measure was reduced to an average amount per class by dividing the  $-13$  by 9. The answer,  $-1.44$ , shows that the tendency of the part-time classes in the 4A grade is to fall below the average of 4A classes generally, and the result is directly comparable with other similar measures for part-time classes in other grades.

In Table XL are given the measures of resultant tendencies of all the classes tested by grades and types of class. It will be noted that girls' classes excel all others slightly in speed, markedly in accuracy. Mixed classes occupy a place between the segregated classes, as naturally

**Table XL—Measurement, by Relative Position, of Resultant Tendencies of Different Types of Classes**

(For explanation of measure, see text)

**Test 7**

Grades	Boys' CLASSES			GIRLS' CLASSES			MIXED CLASSES			PART-TIME CLASSES			"E" CLASSES		
	No.	Atts.	Rts.	No.	Atts.	Rts.	No.	Atts.	Rts.	No.	Atts.	Rts.	No.	Atts.	Rts.
4A	25	+ 20	+ 16	24	+ 42	+ 58	31	+ 39	+ 10	9	-1.44	- .44	2	— .50	-1.00
4B	32	+ 03	+ 19	29	— 34	+ 62	27	+ 26	+ 48	5	.00	— .80	5	+1.00	— .80
5A	29	— 27	— 31	27	.00	+ 15	29	.00	— .21	6	+ .33	.00	5	+1.00	— .20
5B	32	.00	— 25	30	+ 43	+ 47	31	+ 55	— .48	2	+2.00	+ .50	5	— .60	— .20
6A	34	+ 29	— 26	40	+ 12	+ 40	19	+ 58	+ 47	..	.....	.....	1	+2.00	-1.00
6B	36	— 44	— 47	35	+ 06	+ 40	19	— 26	— 31	..	.....	.....	4	— 1.00	+ .50
7A	29	.00	— 45	27	+ 55	+ 74	20	— 15	— 75	..	.....	.....	..	.....	.....
7B	28	— 32	— 11	28	— 07	+ 86	20	+ 05	+ 15	..	.....	.....	..	.....	.....
8A	28	— 71	— 53	29	+ 45	+ 72	16	+ 12	.06	..	.....	.....	..	.....	.....
8B	28	— .04	— .04	20	+ 25	+ 45	18	+ 11	— .06	..	.....	.....	..	.....	.....
Average	301	— .126	— .207	289	+ .187	+ .539	230	+ .165	— .08	22	+ .22	— .18	22	+ .32	— .45

The table shows that in general the scores of girls' classes exceed those of the corresponding boys' classes, the effect being greatest in accuracy and in the sixth and seventh grades. Mixed classes fall between the other two. For the part-time classes, the results by grades apparently indicate that part-time, while injurious in the lower grades, is beneficial in the higher grades. The small number of classes tested, however, prevents the results having meaning except as an illustration of method. The "E" classes show variable results.

follows. The effect of part-time classes is, on the whole, slightly toward increased scores, but the sign of the effect reverses in going from higher to lower grades. For the "E" classes opposing usage tends to obscure any marked effect. The resulting tendencies are variable, but, on the whole, indicate increased speed and decreased accuracy.

That the results have much value in themselves is to be doubted; but as indicating a method and a field of work they are of great value. The differences between the scores of boys and girls,<sup>1</sup> and the prevalence of part-time classes in the lower grades, make these subjects important ones for further study. Carefully planned experiments to determine the basic facts in regard to sex differences should be carried on through several years. The effects of part-time and of other variations in the time allotments should also be evaluated.

### The Effect of Special Methods of Drill

In the talks of the writer with the principals of the various schools visited<sup>2</sup> so many references were made to the frequent use of short practice exercises in the four operations that it seemed wise to include in the questionnaire sent to the principals the following:

"Do you make use of 'speed tests,' 'straight ahead' work, or other tests of similar nature in your regular work?"

The answers suggested were:

<i>Answers</i>		<i>In Grades</i>
No—Yes		
Daily	Often	4-A
Weekly	Rarely	4-B
Monthly		5-A
		5-B, etc.

The replies received give information on this point for 803 classes of the 903 examined. These data make possible a study of the effects of this form of drill.

The scores in Test 7 of the 803 classes were sorted into six groups on the basis of the answer given (daily, weekly, etc.) and the resultant tendency of each group measured following the procedure given on page 121.<sup>3</sup> The results are given in Table XLI. It should be remembered, however, that the use of such special drill exercises is but one of many important factors determining final ability. The resultant effect, if any, need, therefore, not be large, but must be consistent, to be significant. Such a study can be made only where the number of classes is large, as in the present instance.

<sup>1</sup> See page 140.

<sup>2</sup> See page 55.

<sup>3</sup> That is, the amount and quality (+ and -) of the difference of each class average in Test 7, attempts and rights, from the average score for its grade was found. For each grade and group, these differences were combined, both quality and amount being considered, and the resulting sum divided by the number of classes.

Table XLI

DAILY WEEKLY MONTHLY

GRADE	ATTEMPTS			RIGHTS			ATTEMPTS			RIGHTS			ATTEMPTS			RIGHTS		
	No. of classes Above Av.	No. of classes Below Av.	Meas.	No. of classes Above Av.	No. of classes Below Av.	Meas.	No. of classes Above Av.	No. of classes Below Av.	Meas.	No. of classes Above Av.	No. of classes Below Av.	Meas.	No. of classes Above Av.	No. of classes Below Av.	Meas.	No. of classes Above Av.	No. of classes Below Av.	Meas.
8B.....	14	11	-	22	11	14	42	02	4	6	4	57	2	0	20	2	0	+1.05
8A.....	15	12	+ .33	13	12	14	02	00	7	4	4	+ .76	2	2	+	25	0	0
7B.....	16	12	+ .33	13	12	16	00	00	4	6	4	+ .13	0	2	-	35	0	2
7A.....	16	10	+ .37	10	14	12	06	16	7	6	4	+ .32	0	2	-	35	3	0
6B.....	19	20	- .30	20	20	12	01	01	10	10	7	+ .37	1	1	0	15	3	1
6A.....	20	18	+ .30	20	18	18	17	17	7	10	4	+ .29	2	2	-	40	2	0
5B.....	23	18	+ .19	20	20	18	18	05	5	6	5	+ .20	0	1	-	50	1	0
5A.....	23	13	+ .10	23	20	20	06	06	4	6	3	+ .11	0	1	-	50	1	0
4B.....	16	24	- .09	13	27	13	27	05	4	9	3	+ .28	0	1	-	20	1	0
4A.....	21	16	+ .27	18	19	19	07	07	3	7	8	+ .34	0	2	-1.80	2	0	+ .35
Total.....	185	156	+ .12	164	177	164	04	04	46	67	68	+ .29	5	15	-	46	17	+ .97

NO.

RARELY

OFTEN

GRADE	ATTEMPTS			RIGHTS			ATTEMPTS			RIGHTS			ATTEMPTS			RIGHTS		
	No. of classes Above Av.	No. of classes Below Av.	Meas.	No. of classes Above Av.	No. of classes Below Av.	Meas.	No. of classes Above Av.	No. of classes Below Av.	Meas.	No. of classes Above Av.	No. of classes Below Av.	Meas.	No. of classes Above Av.	No. of classes Below Av.	Meas.	No. of classes Above Av.	No. of classes Below Av.	Meas.
8B.....	11	8	+ .06	8	11	31	02	11	3	0	3	-1.03	5	2	+	35	6	1
8A.....	16	14	-1.06	4	16	02	11	11	2	2	3	-1.30	5	3	+	25	0	2
7B.....	12	18	- .04	5	15	53	11	12	0	1	2	- .95	4	4	+	02	6	3
7A.....	16	16	- .70	8	14	55	11	12	0	2	2	- .63	6	3	+	60	5	3
6B.....	17	5	+ .38	10	12	01	11	01	1	4	4	- .67	4	2	+	20	5	2
6A.....	12	12	+ .05	8	16	17	00	00	3	3	3	-1.90	4	1	+	92	2	3
5B.....	11	16	- .42	8	19	34	00	00	1	4	2	- .42	6	2	+	57	4	4
5A.....	17	19	- .71	9	17	45	11	13	3	3	4	- .90	4	2	+	22	4	1
4B.....	12	11	- .03	8	15	66	11	13	2	2	2	- .02	7	1	+	84	8	1
4A.....	6	15	- .44	6	15	64	00	00	1	1	0	- .30	5	8	-	29	8	5
Total.....	100	124	- .30	74	150	46	09	22	4	27	4	- .81	50	28	+	31	54	24

Effect of Special Methods—use of speed tests, straight ahead work, etc. Based upon principal's answer to questionnaire. The table shows for each type of answer the number of classes whose score in Test 7 was higher than the average score of all the classes, and the number whose score was lower. Also a measure of the resultant tendency. (See page 121.) Speed tests, as used in the New York public schools, increase speed, but decrease accuracy.

From the table it may be seen that in general the use of practice tests increases speed but decreases accuracy. For instance, of the 341 classes in which such drills were said to be used daily, 185 classes had scores higher in number of examples attempted (speed) than the average to 156 classes lower than the average; the measure of the resultant tendency being  $+.12$ . In number of examples right, however, the classes are almost equally distributed above and below the average ( $+167$  to  $-177$ , resultant measure  $-.04$ ). For those schools in which such practice drills are used once a week conditions are exactly reversed. In speed the scores fall below the average (46 to 67, the resultant measure  $-.07$ ) and in accuracy above the average ( $+64$  to  $-45$ ; resultant measure  $+.29$ ). For monthly practice the decrease in speed and increase in accuracy is even more marked. For those classes, however, in which such practice work is not carried out systematically, so that the principals could answer only "Often or Rarely," both speed and accuracy are low, more so in the case of the "Rarely" than of the "Often" group. The one inconsistent tabulation is for the group in which speed practice drills are not used at all. Both in speed and accuracy the scores of these schools are higher than the average, so that if the returns were accepted at their face value the inference would be that practice drills were harmful. These classes, however, were almost entirely from two very good schools in the same section of the city, and the result is thus probably due to some purely local factor. If a direct experiment were arranged in which the number and kinds of classes in each group were selected on the basis of their measures at the beginning of the year such a study would make very plain the exact nature of the effect produced.

The conclusion to be drawn from the present data is that emphasized repeatedly; that too much drill is harmful and that speed and accuracy are two related but antagonistic qualities, to each of which attention must be given. The real problem, as has been said, is a problem of securing proper balance. Not endless practice toward maximum achievement, but efficient drill toward optimum standards—drill adjusted in both quality and quantity to individual needs, and continued only so long as necessary to reach a definite goal. Nor should it be forgotten that standard scores alone both make such efficient control possible, and provide the means for measuring the effects produced.

### Effects of Foreign Parentage

In section V, page 76, of this report, the statement was made that the reason for the inefficiency of the work in the schools as conducted at present is the neglect of the one basic factor in education—the inherent differences in the powers and capacities of individual children. Many illustrations of such differences were given. There are, however, other factors of the same character of which the school is almost equally

neglectful, factors which affect the abilities of whole groups of children and to whose effects too little attention is paid.

A factor of this character is foreign parentage. The child from a home in which no English is spoken, whose practice in reading and speaking the vernacular is limited to the exercises of the classroom, is handicapped at the outset of his school work by such conditions. And when to this is added the poor nutrition, the lack of opportunities for healthful play, and the sordid influences of life in a crowded tenement that is the lot of many children in New York City, it would seem that differences must be produced that would necessitate a special course of study that in time allotments, topics studied, and emphasis would differ from that for children living under more fortunate circumstances. The provision of "unassigned time" seems to the writer a totally inadequate means of meeting the situation, but he has more than once in his visits to the schools been amazed at the splendid results secured in the face of tremendous odds. He has, therefore, attempted to measure roughly the effects of foreign parentage in the few schools in which 80 per cent. or more of the children were markedly of "Jewish," "Italian," etc., parentage. The study, however, takes no account of three important factors—the very much greater effort and time given to the work by the teachers in these schools, the relation of age and rate of promotion to grade, and the attitudes and feelings of the children themselves as expressed in school behavior, truancy, mortality, etc. In addition to these there is a host of minor factors that are not considered. The results, therefore, merely show to what extent the product of these schools differ from the average of all the schools in spite of *all the efforts made to meet the conditions*. The total effects of foreign parentage would probably be many times greater than those shown if more than resultant tendencies could be measured.

For the comparisons, two "Jewish," one "German," two "Italian" and two "American" schools were selected before any inspection of their class averages was made. The principal's characterization of the children as "80 per cent. Italian," "95 per cent. poor, Russian Jews," etc., was accepted as indicating the degree of foreign parentage. Only schools of markedly one type were taken, which accounts for the small number. The two "American" schools were chosen as representing children of most favored conditions as to parentage and home influences, etc., of any examined. The resultant tendencies of the classes in these schools in both abstract work (Test 7) and in reasoning (Test 6) were computed by grades for each type of school following the method indicated elsewhere in this report.<sup>1</sup> The resulting data are given in Table XLII.

The table shows some unexpected results. The American children, chosen as representing the most favored type, do not stand high in either speed or accuracy in the abstract work. Although of the 56 classes 30

<sup>1</sup> See page 121.





Table XLII (Cont'd)—Resultant Tendencies in Reasoning, Test 6

GRADE	AMERICAN				ITALIAN				GERMAN				JEWISH			
	Attempts		Rights		Attempts		Rights		Attempts		Rights		Attempts		Rights	
	No.	R. M.	No.	R. M.	No.	R. M.	No.	R. M.	No.	R. M.	No.	R. M.	No.	R. M.	No.	R. M.
	+	—	+	—	+	—	+	—	+	—	+	—	+	—	+	—
4A.....	6	.68	4	.04	3	—1.00	1	.13	1	.15	1	.25	4	.62	1	.47
4B.....	6	.70	4	.37	2	+.29	1	— .08	0	— .25	2	.10	3	.35	1	.60
5A.....	4	.61	5	.30	2	+.36	4	— .30	0	+.05	0	.20	3	.30	1	.60
5B.....	2	.62	2	.04	3	+.16	0	— .62	0	+.10	2	.06	0	.30	0	.45
6A.....	4	.73	4	.31	2	+.25	2	— .31	0	+.45	1	.15	2	.25	4	.06
6B.....	3	.23	3	— .08	4	+.08	0	— .70	0	— .70	0	.60	4	.03	3	.11
7A.....	3	.04	2	.18	2	— .85	0	— .62	0	— .20	2	.45	1	.18	4	.44
7B.....	3	.40	5	.66	0	— .42	0	— .62	0	— .35	0	.20	2	.85	2	.68
8A.....	2	.25	3	.67	1	— .00	0	— .76	1	+.60	0	—1.00	4	.01	5	.50
8B.....	4	.67	3	.65	2	— .20	0	— .63	2	+.17	0	.80	0	.33	3	.13
Totals.....	41	.49	35	.21	22	— .20	8	.43	9	.13	8	.34	23	.24	18	.35

## Part C. Summary of Totals

Type	Test 7				Test 6			
	Attempts		Rights		Attempts		Rights	
	No.	R. M.	No.	R. M.	No.	R. M.	No.	R. M.
	+	—	+	—	+	—	+	—
American.....	30	.26	20	.13	41	.49	25	.21
Italian.....	20	.21	13	.20	19	.20	8	.43
German.....	6	.13	11	.48	10	.13	8	.20
Jewish.....	26	.29	17	.23	23	.24	18	.34
								.35

R. M. means measure of resultant tendency. + means above average. — means below average.

have scores above the average in speed, the resultant measure is  $-.13$ , and if it were not for the two exceptional values in the 5B and 6A grades the negative value would be nearly three times as large. In accuracy 36 of the classes fall below the average and the results are consistently negative. The other schools show results of closely the same quality and value. So that while children of foreign parentage do poorly in the abstract work, their results are no worse than those of the American children, showing that the language question may not affect this type of work. It is interesting to note in passing that the German children bear out the reputation of the fatherland, being slow in speed (13 classes below the average to 6 above; resultant measure  $-.56$ ) and high in accuracy (11 classes above to 6 below; resultant measure  $+.36$ ).

In reasoning, however, the situation is quite different. Here the basic difficulty of the language problem allows the Americans to excel both in speed (42 classes above the average to 15 below; resultant measure  $+.50$ ), and in accuracy (35 classes above to 21 below; resultant measure  $+.39$ ). The children of foreign parents are consistently below both in speed (67 classes below to 47 above; resultant measure  $-.18$ ) and in accuracy (81 below to 34 above; resultant measure  $-.39$ ). Foreign parentage is thus a handicap sufficient to lower the scores of all the classes in all the grades .7 of an example ( $+.50 - .18$ ) and ( $+.39 - .39$ ). As the average yearly progress in this test is but .6 of an example, it will be seen that the handicap is about equal to that of teaching a class of American children the subjects a year in advance of their real grade. And it must not be forgotten that this result represents merely how far short the provisions made by the school authorities, and the strenuous efforts of the teachers, come of meeting the difficulty. It is in no way a measure of the whole effect. As a whole, therefore, the results show that this problem, too, is one that needs careful investigation. It seems probable that a very simple practical course of study in Arithmetic, based directly and solely upon the social needs of the children, would influence for good a greater number of both teachers and children than any other change that could be as easily made.

#### Relation Between Abilities

An entirely different type of product results from the tabulation of the individual scores to determine the relation between two given abilities. Several studies of this sort have been reported above in the discussion of standard scores.<sup>1</sup> Such determinations of relationships between abilities often furnish knowledge that aids in attaining the proper balance in the course of study and may, therefore, be of much importance.

Test 5, rate of motor activity, is a test that seems to have little bearing on school work, yet quickness of motion and thought, particularly

<sup>1</sup> See page 85.

when associated with accuracy, is highly prized in the ordinary activities of life. The relation of the ability measured in this test to certain of the other abilities measured will be discussed.

The general method followed has been indicated above. The individual scores were sorted into groups on the basis of one test; then each group redistributed on the basis of their scores in the other test. In previous tables the entire distributions were given. In the present section only the average score of each group in the second test will appear in the table. The results should in every case be interpreted with the wide range of individual variation in mind.

### Speed in Test 5 and Knowledge of the Tables

The first relation to be discussed is that of speed to ability to write answers to the combinations. The data are given in Table XLIII and the relation shown graphically in Fig. XLIII. A given score in one test is, on the average, associated with a corresponding score in the other; that is, the habit of moving the fingers rapidly is one of the factors determining a person's score in the speed tests. A low score, therefore, may not mean lack of knowledge of the combinations.

The initial decline in the curve is difficult to explain. The actual scores shown in the table are inconsistent. A total score of 121 in the four speed tests means an average score of forty in each. That 116

**Table XLIII—Relation Between (1) Speed in Copying Figures (Test 5) and (2) Ability to Write Answers to the Fundamental Combinations (Tests 1-4)**

Boys			Girls		
Score in Test 5	Number Making Score	Average in Tests 1-4	Score in Test 5	Number Making Score	Average in Tests 1-4
Over 155	98	236	Over 155	167	227
155	37	233	155	49	234
145	113	236	145	137	231
135	246	227	135	291	221
125	979	206	125	1,158	205
115	1,138	191	115	1,270	190
105	2,175	176	105	2,388	177
95	2,460	160	95	2,431	161
85	3,013	149	85	2,664	143
75	1,484	125	75	1,277	129
65	965	117	65	825	119
55	474	108	55	391	120
45	265	114	45	276	128
35	66	121	35	85	138
25	56	121	25	76	137
15	60	141	15	57	140

Total Score,  
Tests 1-4.

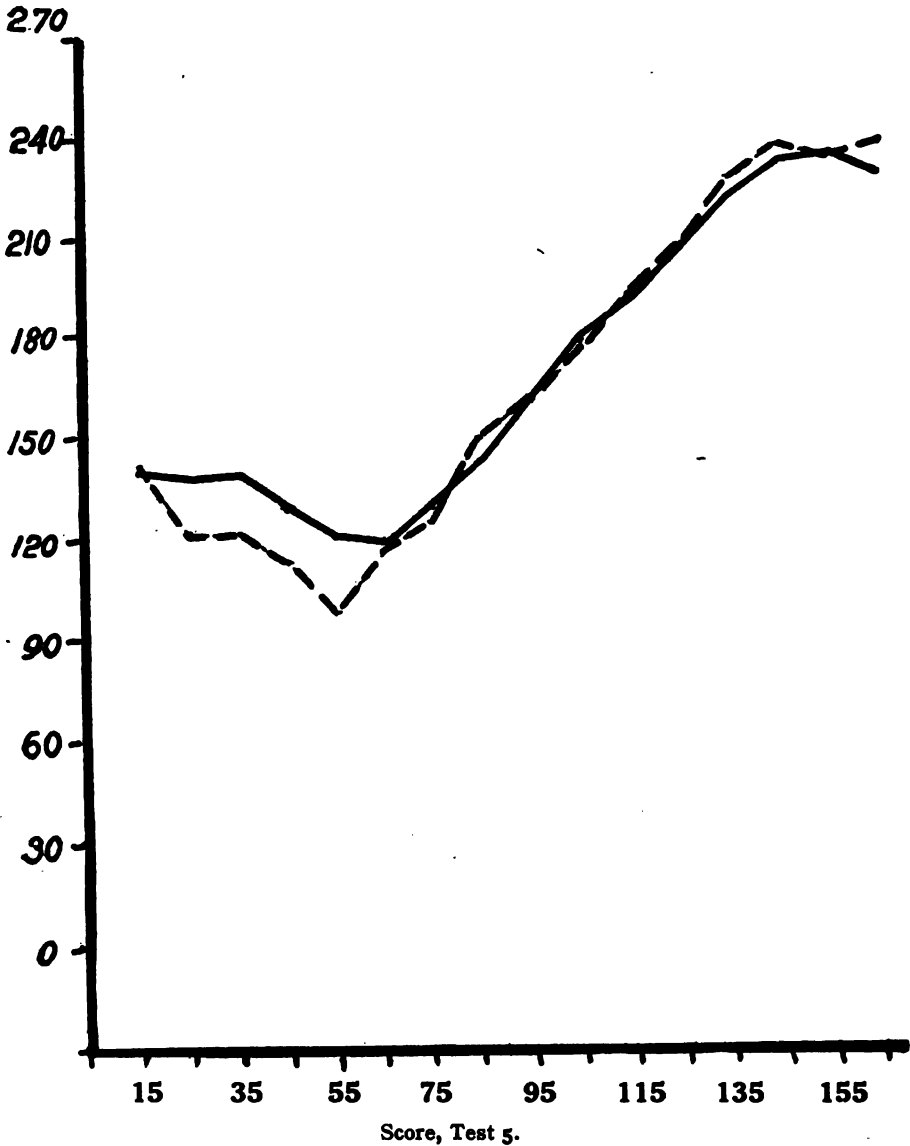


Fig. XLIII

Relation between speed in copying figures and ability to write answers in speed tests 1-4. The abilities are closely related and equally so for boys and girls. For explanation of the irregularities at the lower end of curve, see text. Solid line, boys; dotted line, girls.

Table XLIV—Relation Between Speed in Copying Figures (Test 5) and Ability to Work Abstract Examples (Test 7, Attempts and Rights)

BOYS				GIRLS				BOYS				GIRLS			
Score in Test 5	Number Making Score	Average in Test 7 Attempts	Score in Test 5	Number Making Score	Average in Test 7 Attempts	Score in Test 5	Number Making Score	Score in Test 5	Number Making Score	Average in Test 7 Rights	Score in Test 5	Score in Test 5	Number Making Score	Average in Test 7 Rights	Score in Test 5
Over 155	98	14.5	Over 155	167	14.7	Over 155	98	Over 155	167	7.7	Over 155	Over 155	167	5.0	Over 155
155	37	14.9	155	49	14.9	155	37	155	49	8.2	155	155	49	7.7	155
145	113	15.2	145	137	15.9	145	113	145	137	8.8	145	145	137	8.8	145
135	246	15.8	135	291	15.9	135	246	135	291	9.0	135	135	291	9.0	135
125	979	14.8	125	1,158	15.1	125	979	125	1,158	8.4	125	125	1,158	9.0	125
115	1,138	14.6	115	1,270	14.6	115	1,138	115	1,270	8.3	115	115	1,270	8.6	115
105	2,175	13.6	105	2,388	13.8	105	2,175	105	2,388	7.6	105	105	2,388	8.3	105
95	2,460	12.6	95	2,431	12.7	95	2,460	95	2,431	7.1	95	95	2,431	7.7	95
85	3,013	11.2	85	2,664	11.3	85	3,013	85	2,664	6.2	85	85	2,664	6.8	85
75	1,484	10.1	75	1,277	10.4	75	1,484	75	1,277	5.7	75	75	1,277	6.3	75
65	965	9.3	65	825	9.5	65	965	65	825	5.3	65	65	825	5.5	65
55	474	8.8	55	391	9.3	55	474	55	391	5.2	55	55	391	5.3	55
45	265	8.2	45	276	9.5	45	265	45	276	4.4	45	45	276	5.8	45
35	66	9.7	35	85	10.4	35	66	35	85	5.2	35	35	85	6.0	35
25	56	10.2	25	76	10.6	25	56	25	76	5.4	25	25	76	6.3	25
15	60	11.2	15	57	10.9	15	60	15	57	6.4	15	15	57	5.3	15

(56 plus 60) children should be able to write forty answers per minute in a speed test, but able to copy less than thirty figures per minute in Test 5, is contradictory. A partial explanation is that Test 5 is the first one given, and some children interpret the instruction to mean that they are to draw their figures with painstaking care. It was not possible to make the analysis necessary to determine whether this accounts for all of the effect or not.

### Speed in Test 5 and Abstract Work

The relation of speed to ability in Test 7 is shown in Table XLIV and Fig. XLIV. The inference is that speed in writing figures as such speed is developed in the New York schools is a factor in determining the number of examples attempted, and, to a much less extent, the number worked correctly. It seems probable that both ac-

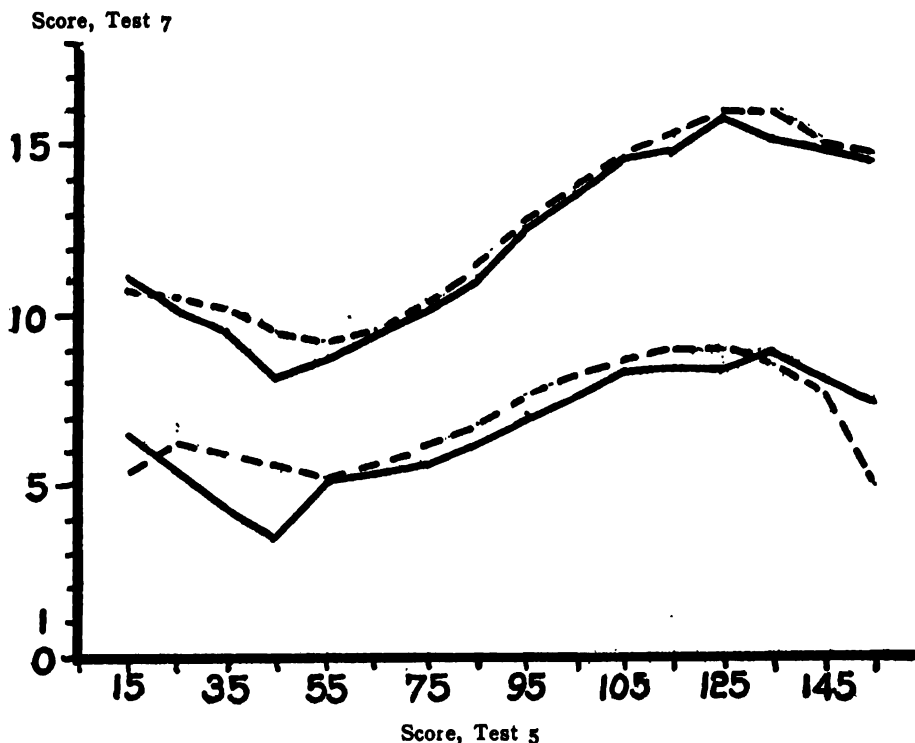


Fig. XLIV

Relation between speed in copying figures and speed and accuracy in abstract work (Test 7). Solid line, boys; dotted line, girls; upper line, attempts, Test 7; lower line, right. For both, speed in copying figures is a large factor in the number of examples attempted, but a much smaller factor in the number of examples right.

curacy and speed need specific attention in the schools. Of the two, accuracy, it would seem, should be put before speed; that is to say, a child able to work accurately would, upon taking a business position, gain speed from the daily practice that is inherent in all commercial work. On the other hand, the really vital thing is to adopt the method most nearly in accord with the child's natural development, and it may be more efficient to develop speed before accuracy. The results from this investigation do not throw light upon the question except to indicate that speed, as one of many factors, has slight influence in determining the score made in examples right.

### Speed in Test 5 and Simple Reasoning

The question of speed in copying figures was also studied in relation to speed in simple reasoning. Table XLV and Fig. XLV show the relation between the scores made by the boys and girls in Tests 5 and 6. The connection between the two abilities is evidently closer than in the preceding case. In general those who can copy figures rapidly are able to read and decide the simple problem with a corresponding degree of rapidity. That is, speed in mental activities is probably conditioned by the inherent organization of the individual to the same degree that speed in muscular activity is. The importance, therefore, of the school's super-

**Table XLV—Relation Between Speed in Copying Figures (Test 5) and Ability in Simple Reasoning (Test 6, Attempts)**

Boys			Girls		
Score in Test 5	Number Making Score	Av. Score in Test 6 Attempts	Score in Test 5	Number Making Score	Av. Score in Test 6 Attempts
Over 155	98	6.6	Over 155	167	6.5
155	37	6.0	155	49	6.6
145	113	6.6	145	137	6.8
135	246	6.6	135	291	6.4
125	979	6.0	125	1,158	6.1
115	1,138	5.9	115	1,270	5.6
105	2,175	5.5	105	2,388	5.3
95	2,460	5.0	95	2,431	4.8
85	3,013	5.1	85	2,664	4.4
75	1,484	4.1	75	1,277	3.9
65	965	3.7	65	825	3.7
55	474	3.5	55	391	3.6
45	265	2.9	45	276	3.5
35	66	3.6	35	85	3.9
25	56	4.0	25	76	4.0
15	60	3.7	15	57	4.2

vision of the habits of work, formed in the early grades, should be obvious.

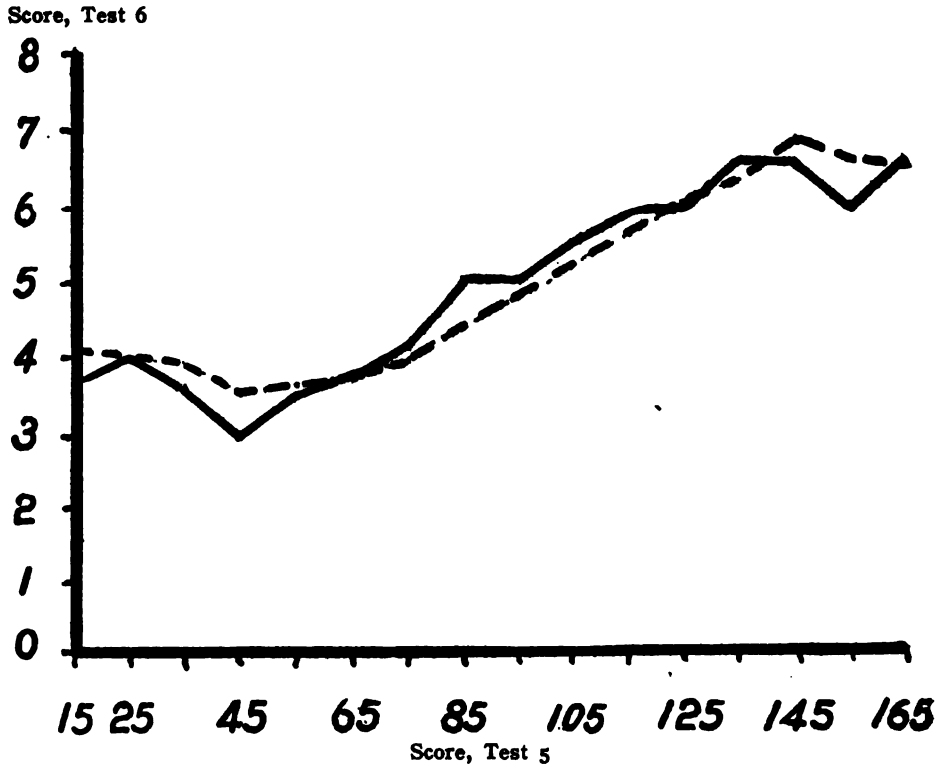


Fig. XLV

Relation between speed in copying figures and speed in simple reasoning. Solid line, boys; dotted line, girls. For both, the two abilities are closely related.

### Sex Differences

The differences in the resultant tendencies of boys' and girls' class, discussed above, together with the slightly higher averages of girls over boys, lead naturally to the consideration of the attention that should be paid to sex differences in planning the course of study. The superiority of girls over boys, as shown by special tests, differences in rates of promotion, etc., has been noticed by many investigators and the inference is sometimes drawn that school work is better adapted to girls than to boys. All such discussions are based upon the use of averages which seem to the writer to hide the real facts of the case. Differences between the abilities of boys and girls there undoubtedly are, but whether due to sex or to environmental influences the differences are too slight to be



of any significance *so far as present knowledge goes*. For example, in Table XLVI is given for the 7B grade by boys and girls the grade averages, and the distribution of the individual scores in Tests 3 and 6, which represent the extremes in the amount of difference observed. The curves of the grade averages in Fig. XLVI will make the relation between the two types of scores plain.

It will be noted that in Test 3 the range of boys is 100 units of the scale; for girls, 110 units; that the superiority of the girls' average over the boys is but 2.8 units. Forty-seven per cent. of the girls and 38 per cent. of the boys exceed the average score made by the girls, while 39 per cent. of the girls and 50 per cent. of the boys have scores below the average score of the boys. In reasoning the differences are greater. The range of the boys' score is sixteen examples; of the girls', twelve; the difference between the averages of the two groups, .6 of one example. Forty-six per cent. of the boys and 30 per cent. of the girls exceed the average score made by the boys, while 40 per cent. of the boys and 55 per cent. of the girls fall below the average score of the girls. These facts are shown graphically in Fig. XLVII.

**Table XLVI—Sex Differences in Average Scores and in Distributions by Grades**

GRADES	GRADE AVERAGES					
	Test 3		Test 6			
			Attempts		Rights	
	Boys	Girls	Boys	Girls	Boys	Girls
4A	25.9	27.7	3.2	3.4	1.6	1.6
4B	29.6	31.6	3.7	3.7	2.0	1.9
5A	32.7	34.4	4.2	4.1	2.2	2.1
5B	35.4	37.2	4.6	4.7	2.7	2.4
6A	37.3	39.6	5.1	4.8	3.1	2.7
6B	36.5	40.0	5.1	5.3	3.4	3.0
7A	38.9	41.9	5.1	5.4	3.6	3.3
7B	40.1	42.9	5.7	5.6	4.2	3.6
8A	43.9	45.9	6.0	5.8	4.5	3.9
8B	45.6	47.6	6.3	6.0	5.0	4.4
9A	42.7	47.1	6.4	5.9	5.0	4.8
9B	45.4	49.4	5.8	6.0	5.0	5.0
10A	43.5	47.2	5.6	6.1	4.9	5.2
10B	45.8	48.5	5.6	5.9	4.9	4.8
11A	45.7	46.3	6.1	5.8	5.7	4.5
11B	50.4	51.6	5.5	6.4	4.6	4.8
12A	46.1	47.6	6.5	6.6	5.3	5.3
12B	49.2	44.9	6.7	6.6	5.8	5.6
....	....	....	....	....	....	....
....	....	....	....	....	....	....
....	....	....	....	....	....	....

Table XLVI (continued)

Test 3			Test 6				
Score	7B Grade		Score	Attempts		Rights	
	No. Making Score			No. Making Score		No. Making Score	
	Boys	Girls		Boys	Girls	Boys	Girls
125	.....	2	16	1	6	1	.....
115	.....	.....	15	.....	.....	.....	.....
105	1	3	14	1	.....	.....	.....
95	.....	3	13	4	3	.....	.....
85	5	12	12	7	6	1	1
75	14	12	11	7	11	.....	2
65	76	82	10	15	18	6	4
55	130	176	9	34	21	10	4
45	401	431	8	59	52	23	11
35	452	363	7	119	88	50	24
25	144	78	6	240	216	110	61
15	11	6	5	287	273	197	132
5	1	.....	4	238	230	245	197
...	.....	.....	3	161	172	245	236
...	.....	.....	2	55	65	201	273
...	.....	.....	1	6	6	113	175
...	.....	.....	0	1	1	33	48
Total No...	1,235	1,168	...	1,235	1,168	1,235	1,168
Average Score....	40.1	42.9	...	5.7	5.6	4.2	3.6

In view of the extent to which the sex groups overlap, the fact of a small difference in the average scores of the groups need not be considered in planning the course of study. At the same time the fact that such differences exist is proof that there are forces at work of which school men are ignorant.

#### Efficiency of Present System of Grading

The whole question of relative ability and grading is an important one for which the present machinery of promotion is utterly inadequate. No better proof of the inability of the school without objective measurement to grapple successfully with its problems is needed than is found in the fact that if children were graded mechanically on an age basis alone—all children of from ten to eleven years of age being put in the fourth grade, those eleven years old in the fifth grade, and so on—the grades would be neither more nor less variable than they are at present in respect to the fundamental abilities of arithmetic. The data upon which this statement is based will be found in Table XLVII. The distributions of the scores of 5A boys and girls in Test 1, addition, are given; also the distributions on an age basis. The average of each group is also given.

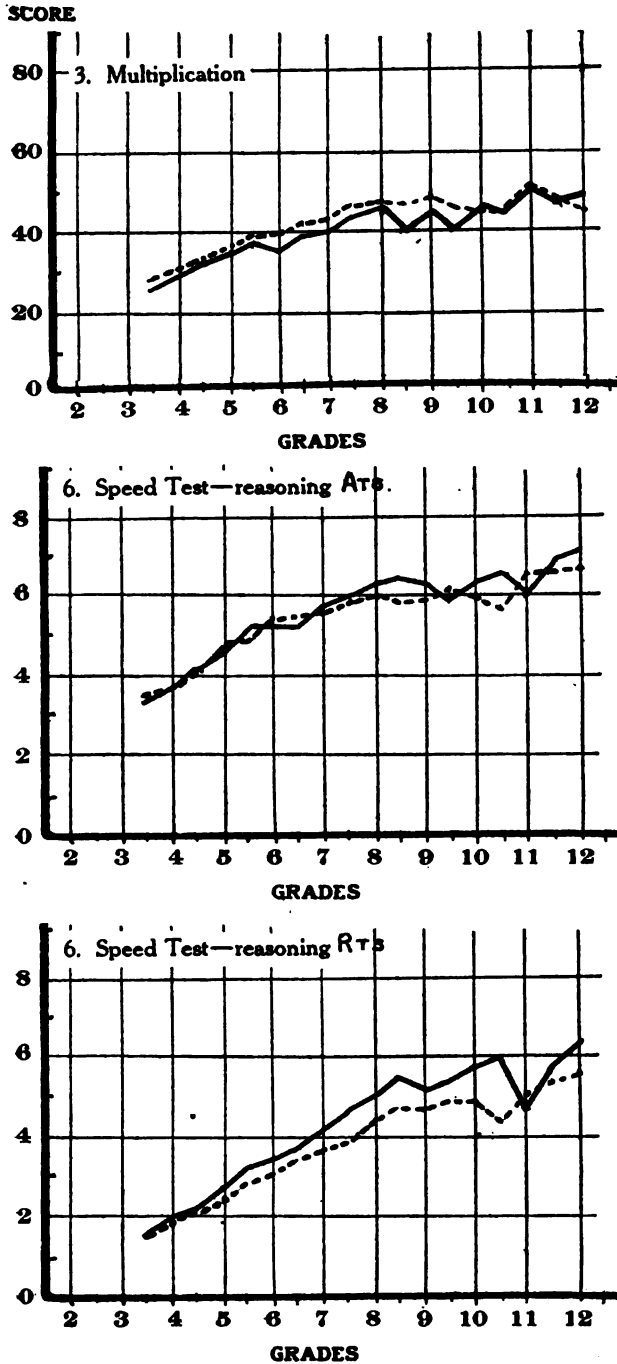


Fig. XLVI

Comparison of achievements of boys and girls in Speed Test 3, Multiplication, and Test 6, Speed Reasoning; attempts and rights. Solid line, boys; dotted line, girls. The girls exceed the boys in multiplication and fall below them in accuracy of work in reasoning. These tests were chosen as representing the extreme differences in the achievements of the sexes. The amount of the differences are insignificant. See Fig. XLVIII.

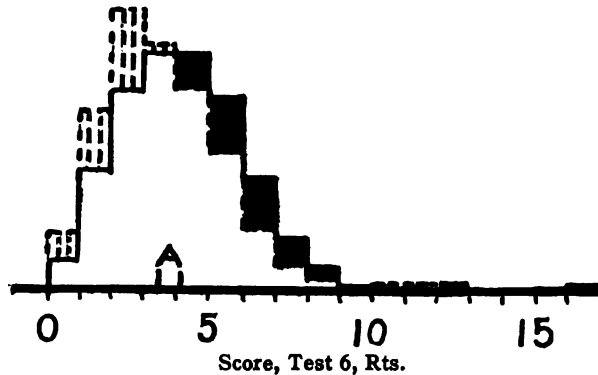


Fig. XLVII

Superiority of 7B boys over 7B girls in examples right, Test 6, based on a distribution of 1,200 individual scores of each sex. The difference between the two marks A is the difference between the average scores of the two groups. The part in black represents the boys higher than the girls; the shaded portion, the girls that fall below the boys. The part in white is common to both sexes.

A measure of the variability of a group is the average difference of the individual scores from the average score of the group. The average deviations in the table have been found by the usual approximate methods.<sup>1</sup> For purposes of comparing the variability of different groups, the per cent. each average deviation is of its own average will be used as a coefficient of variability. Thus, in Table XLVII the average deviation of the boys is 9.4, and the girls 9.9. But the average of the girls' score is also larger, 49.1 to 47.6. The larger average deviation may not indicate a larger variability, as the average has made a corresponding change. In fact, 9.4 is 20 per cent. of 47.6, its average, just as 9.9 is 20 per cent. of its average, 49.1. The two variabilities are, therefore, the same, although the average deviations differ.

In Table XLVII are also given for all the grades and corresponding ages and for boys and girls the coefficients of variability of the scores in Tests 3 and 7. It will be seen that the figures are remarkably constant and fully support the statements above.

#### Defects of Course of Study by Analysis of Mistakes

A statistical investigation of educational products can be made to yield data bearing upon other school problems of general importance. It often happens that the practical workings of a course of study in arithmetic and the theoretical considerations upon which it was based are widely different. By analysis and tabulation of the different types of mistakes made, it is possible to lay bare the actual defects of any given course.

<sup>1</sup> Mental and Social Measurements, E. L. Thorndike, p. 75.

Table XLVII

Distribution by age and grade to show variabilities. Also variability of Tests 3 and 7 by grades and ages. The variabilities given at the bottom of the first part of the table show that mechanical grading on an age basis would not produce more variable groups than now exist in the grades. Confirmed for two tests and all grades in the second part of the table. For explanation of the measure of variability used, see text.

TEST 1					VARIABILITIES						
Score	No. Making Score 5A		No. Making Score 11.5 Yrs. Old			Boys			Girls		
	Boys	Girls	Boys	Girls		4A	4B	Years 10.5	4A	4B	Years 10.5
125	2	2	2	1	Test 3 { Atts. Test 7 { Rts.	27%	27%	27%	25%	27%	26%
115	.....	1	1	1		34	24	24	28	22	26
105	.....	3	1	14		55	47	47	43	44	45
95	3	5	3	15	Test 3 { Atts. Test 7 { Rts.	5A	5B	Years 11.5	5A	5B	Years 11.5
85	15	22	53	101		24%	24%	24%	25%	24%	25%
75	43	47	120	166		26	21	22	22	23	23
65	197	216	420	429	Test 3 { Atts. Test 7 { Rts.	45	40	46	42	36	43
55	317	378	599	579		6A	6B	Years 12.5	6A	6B	Years 12.5
45	498	475	681	632		23%	23%	22%	25%	24%	25%
35	237	223	327	239	Test 3 { Atts. Test 7 { Rts.	22	20	21	21	18	22
25	46	31	81	47		39	40	42	36	36	39
15	4	.....	5	2		7A	7B	Years 13.5	7A	7B	Years 13.5
5	1	.....	1	1	Test 3 { Atts. Test 7 { Rts.	23%	23%	26%	22%	20%	22%
.....	.....	.....	.....	.....		20	18	21	18	17	21
.....	.....	.....	.....	.....		32	31	40	29	31	34
Totals.....	1,363	1,403	2,294	2,227	Test 3 { Atts. Test 7 { Rts.	8A	8B	Years 14.5	8A	8B	Years 14.5
Average.....	47.6	49.1	50.1	53.3		21%	20%	23%	19%	19%	21%
Av. Dev. ....	9.4	9.9	11.2	11.1		18	15	20	16	15	19
Var. ....	20%	20%	22%	21%		32	26	38	30	27	37

Table XLVIII—Analysis of Mistakes, Test 7

Grades	Number of Papers Scored	Total Number of Examples Attempted	Total Number of Errors Made	MISTAKES DUE TO CARELESSNESS		MISTAKES DUE TO COPYING		MISTAKES IN USE OF COMBINATIONS	
				No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
4A	95	875	435	52	12%	53	12%	213	49%
4B	67	398	273	45	16	21	8	160	58
5A	75	730	312	39	13	24	8	201	64
5B	62	626	308	27	9	26	8	107	35
6A	89	1,083	430	48	11	40	9	220	51
6B	98	1,111	379	50	13	44	12	176	46
7A	67	890	290	39	13	36	12	153	53
7B	57	723	216	36	17	21	10	104	48
8A	104	1,545	404	49	12	16	4	206	50
8B	57	872	160	19	12	19	12	80	50

### Abstract Work

In Table XLVIII such a tabulation of the mistakes made in the papers in Test 7 from two schools is presented. The types of mistakes given are those of carelessness (bringing down the wrong figure in division, placing a partial product under the wrong figure in multiplication, etc.); those of copying (writing 678 as 687); and those due to a mistake in the fundamental combinations. An inspection of the table will show that conditions do not improve from grade to grade; that, in Test 7, half of the mistakes are due to lack of complete mastery of the tables, one-eighth of the mistakes to carelessness, and one-twelfth to copying; the rest are scattered. Systematic training in rapid checking of work done would do much to eliminate carelessness in copying; the remedy for lack of knowledge of the tables has been discussed before.

Mistakes due to carrying are another important type of mistake. The measure of the effect of carrying is possible since the first four examples involve no carrying, while the second four do. Table XLIX gives the facts in regard to the number of children completing both examples of the pairs 1 and 5, 2 and 6, etc., and the number getting each right. The difference in the accuracy (per cent. of examples right) for each example of a pair measures the effect of the carrying.

**Table XLIX—Analysis of Results in Test 7**  
**Effect of "Borrowing and Carrying" on Accuracy**

	Addition Examples 1 and 5		Subtraction Examples 2 and 6		Multiplication Examples 3 and 7		Division Examples 4 and 8	
No. Attempting Both . . .	731		717		680		447	
No. Right . . . . .	471	492	548	408	459	318	309	163
Accuracy . . . . .	64%	67%	76%	57%	67%	47%	69%	36%
Difference . . . . .	-3%		19%		20%		33%	

The negative score in addition is partly due to the fact that, in the lower grades, many children did not work the two parts of the first example separately as planned and, therefore, did not get the right answer; the effect of the carrying in addition is slight. The effect is greater and equal for subtraction and multiplication, and greatest in division, where the example with carrying is approximately twice as hard as that of equal length without carrying, judging by the accuracy of work in each case. This suggests that long division is the best medium for practice work to correct this defect, as all the other operations are involved. The effect of carrying is large, decreasing the accuracy nearly

one-half in division, for instance, and one-fourth in subtraction. Why this should be so is not known, but the fact that it is so explains why mere drill on the tables will not of itself necessarily increase accuracy.

### Reasoning Work, Test 6

The reasoning tests offer a fruitful field for such analytical work as, at present, probably no other phase of work in arithmetic is so poorly organized or rests upon such a slight foundation of knowledge. The rapid analysis and solution of simple oral problems which is being advocated at the present time by many educational authorities is closely similar to the work of Test No. 6, Speed Reasoning. Is such work of advantage? Will the ability "transfer" to Test No. 8 the longer two-step reasoning problems?

The answer is given in Table L and Fig. XLVIII, where the relation between scores on the basis of examples right in Test 6 and Test 8 is presented as other relations between abilities have been in previous discussions. It will be seen that the two curves steadily rise except at the extreme end where the cases are too few to be significant. The two abilities, therefore, are directly related, and the ability to solve two-step problems is a function of the ability to decide readily the operation to be used in simple situations. In view of these facts it is probable that a large amount of the various phases of mental arithmetic and rapid work in a simple reasoning would materially strengthen the work in reasoning. Indeed, for some teachers, the test itself furnished the only hint needed, and, in many schools, letters from the principals show that greater emphasis was at once given to this phase of the work.

Table L

Relation Between Accuracy in Speed Reasoning (Test 6, Rts.) and Accuracy in Reasoning (Test 8, Rts.)

Boys			Girls		
Score in Test 8	Number Making Score	Average in Test 6	Score in Test 8	Number Making Score	Average in Test 6
8	.....	.....	8	.....	.....
7	4	5.0	7	5	4.3
6	19	8.3	6	11	4.4
5	56	6.1	5	48	6.3
4	260	6.0	4	170	5.5
3	830	5.0	3	631	5.0
2	2,241	4.3	2	1,802	4.1
1	3,930	3.5	1	3,947	3.4
0	6,289	2.3	0	6,928	1.9

Score, Test 6.

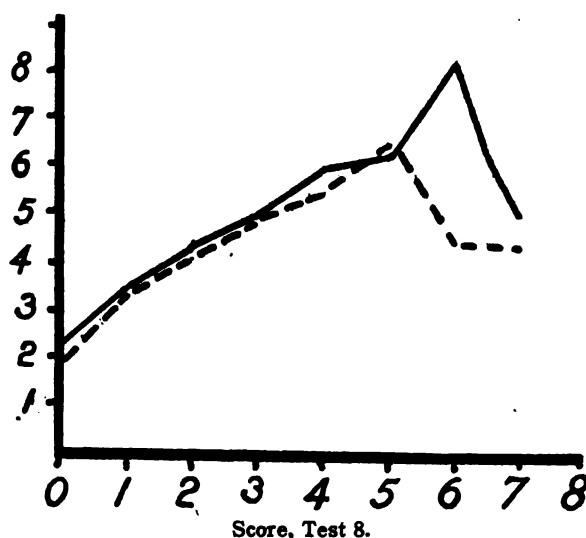


Fig. XLVIII

Relation between ability in speed reasoning and ability to work reasoning problems. (On basis of scores of examples right in Tests 6 and 8.) One ability is directly dependent upon the other.

The analysis of the mistakes in Test 6 furnishes some of the information so badly needed for a proper organization of teaching effort in reasoning. In Table LI are given by grades the results from the analysis of mistakes in the first four examples in 730 papers from two schools. These cover the four operations and the analysis is limited to the four

Table LI—Analysis of Accuracy in Speed Reasoning by Grades and Operation, Test 6

GRADES	EXAMPLE 1 MULTIPLICATION			EXAMPLE 2 ADDITION			EXAMPLE 3 SUBTRACTION			EXAMPLE 4 DIVISION		
	Atts.	Rts.	PerCent. of Acc.	Atts.	Rts.	PerCent. of Acc.	Atts.	Rts.	PerCent. of Acc.	Atts.	Rts.	PerCent. of Acc.
4A	87	45	52%	85	38	45%	67	13	19%	41	14	34%
4B	67	43	64	64	18	28	51	12	24	29	20	69
5A	75	63	84	62	28	45	56	20	36	36	19	53
5B	65	51	78	58	22	38	57	17	30	43	28	65
6A	88	65	74	87	38	44	85	33	39	73	52	71
6B	65	46	71	65	31	48	63	31	49	50	44	88
7A	67	50	75	66	34	51	63	27	43	57	41	72
7B	57	50	88	57	38	67	57	33	58	56	45	80
8A	102	92	90	101	76	75	102	79	77	92	83	90
8B	57	50	88	57	45	79	56	40	71	51	49	96
Total....	730	555	76	702	368	51	657	305	46	528	395	75



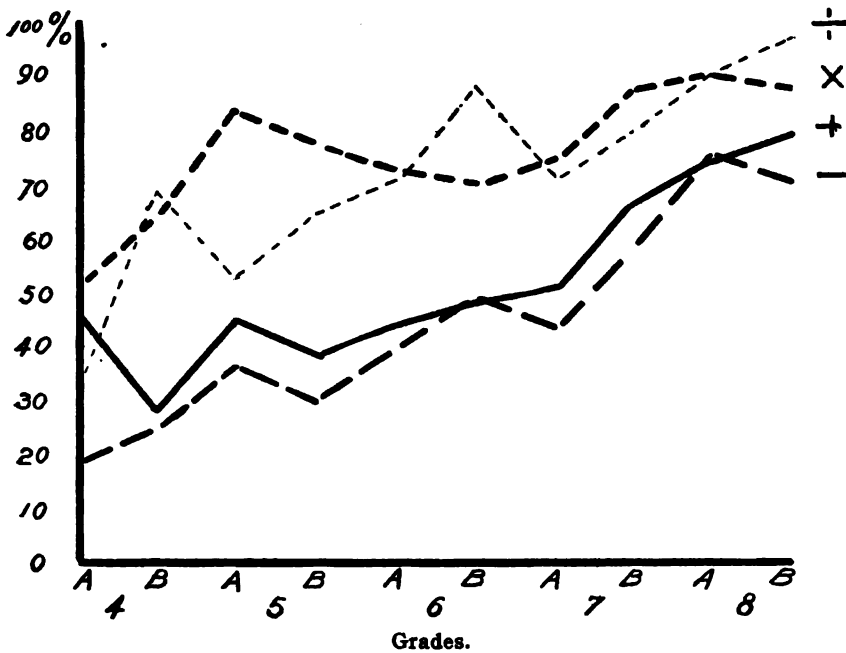


Fig. XLIX

examples because, as will be seen from inspection of the number of examples attempted, not many children below the seventh grade complete the four examples.

The results are shown graphically in Fig. XLIX. It will be noted that, in addition, the curve rises from a low accuracy in the early grades to a final accuracy of 75 per cent. The subtraction curve is closely the same but more irregular. The curve for multiplication rises rapidly to a high value in the 5A grade, steadily declines through the three grades following, then rises rapidly to a maximum. The curve for division follows somewhat the same course. It is probable, however, that the irregularities of these curves are due to the small number of papers examined. The excellence of a good class or teacher could change the averages materially. The only safe inference is that judgments of the operation to be used are more difficult in the addition and subtraction situations in reasoning than in the multiplication and division situations. As the difficulty most often noticed by the teacher is the confusion of multiplication and division situations, this result will be a surprise to many; but it is fully confirmed by an analysis of the different variations possible in addition-subtraction examples as compared with those in the multiplication-division problems.

In this connection a further analysis of mistakes is interesting. In

Table LII—Analysis of Errors in Speed Reasoning, Examples 1-4

## Arithmetic—Test No. 6. Speed Test—Reasoning

1. The children of a school gave a sleigh-ride party. There were 9 sleighs used, and each sleigh held 30 children. How many children were there in the party?
2. Two school-girls played a number game. The score of the girl that lost was 57 points and she was beaten by 16 points. What was the score of the girl that won?
3. A girl counted the automobiles that passed a school. The total was 60 in two hours. If the girl saw 27 pass the first hour how many did she see the second?
4. On a playground there were five equal groups of children each playing a different game. If there were 75 children altogether, how many were there in each group?

## Operation Substituted

	Total Number of Errors	ADDITION		SUBTRACTION		MULTIPLICATION		DIVISION	
		Number of Cases	Per Cent. of Total Errors	Number of Cases	Per Cent. of Total Errors	Number of Cases	Per Cent. of Total Errors	Number of Cases	Per Cent. of Total Errors
No. 1— Multiplication.....	175	57	32	10	6	....	....	108	62
No. 2— Addition.....	334	....	....	179	54	70	21	85	25
No. 3— Subtraction.....	352	85	24	....	....	137	39	130	37
No. 4— Division.....	133	30	23	20	15	83	62	....	....

Table LII are given the first four problems of the test and an analysis of the character of the errors made. It should be noticed that, as the problems are stated, the conventional "cues" are avoided. Each problem presents a situation in detail. Then a question is asked, the answer to which can be made only by those who have grasped the relations existing between the different quantities involved. Thus the question in the first example—How many children were there in the party?—does not indicate in itself in any way the operation to be used; is of the same form as the question used in the sixteenth example, for instance, where the operation to be used is division. So for the other examples. The second example is undoubtedly more difficult than the others because of the presence of the words "lost," "beaten," which are often "cues" for subtraction.

The analysis of mistakes shows that, for multiplication, the first problem, six children out of ten substituted division. This confusion of ideas is familiar to all teachers of arithmetic, and is another indication of the need for a constructive analysis of the whole problem of teaching reasoning in arithmetic. Of the remaining four children, three "guessed" addition and one subtraction.

For addition, problem two, five children out of ten failed to grasp the true situation and responded to the stimuli "lost" and "beaten."

The subtraction problem, number three, was beyond the comprehension of all, probably because of language difficulty. The "guesses" di-

vide almost equally between the other three operations—addition, the reverse, receiving even less than the other two.

In the division problem, for two-thirds of the children confusion with multiplication occurred, as in example one.

Such results, although not final, owing to the small number of examples and papers analyzed, are typical of the confusion that exists in the minds of many children. The idea that this must necessarily be so should not be entertained for a moment. It is caused wholly by vagueness of aim and by ignorance of the true relation between the essential elements of the subject.

### Reasoning Work, Test 8

The results from the other reasoning test, No. 8, are susceptible of the same sort of analysis. The data for accuracy are given for the first two problems separately in Table LIII and in Fig. L. The difference between these two problems lies in the fact that the second contains numbers which have nothing to do with the result desired, so the child is called upon to pick out the quantities that are significant for the question asked. The effect of this need for selection is to decrease the accuracy approximately a constant amount for grades 6, 7, and 8. The relative difficulty of problems involving such selection varies from "many times" to "one and one-half times as hard" in the upper grades.

The development curve of accuracy for the first example seems satisfactory, but a comparison of the average score of the 8B grade in this test with half the average scores in Test 7 (the time allowance in Test 7 was twice that of Test 8) will show that the reasoning problems are more than twice as difficult as measured by the number attempted or completed correctly in a given time. The data are given in Table

**Table LIII—Comparison of Accuracy of Work by Grades in Case of First Two Problems of Test No. 8**

Grades	PROBLEM 1			PROBLEM 2			Difference in per Cent. of Accuracy
	Attempts	Rights	Per Cent. of Accuracy	Attempts	Rights	Per Cent. of Accuracy	
4A	94	5	5	76	0	0	5
4B	66	8	12	48	1	2	10
5A	73	28	38	56	6	11	27
5B	58	15	26	47	6	13	13
6A	87	49	56	64	20	31	25
6B	98	62	63	85	22	26	37
7A	67	41	61	50	14	28	33
7B	53	36	68	42	17	40	28
8A	101	78	77	85	45	53	24
8B	56	48	86	42	24	57	29

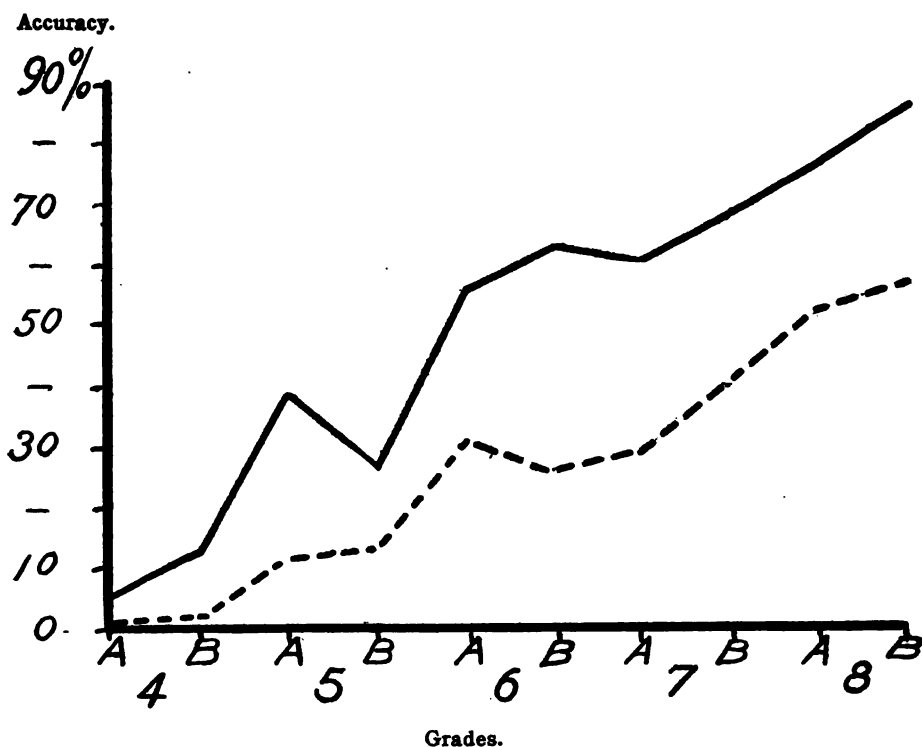


Fig. L

Comparative accuracy of first two problems in Test 8, Reasoning. Solid line, No. 1; dotted line, No. 2. The second problem contains several numbers that have nothing to do with the result desired. The element of selection in the second problem causes (in grades 6-8) a decrease in accuracy of nearly 30 per cent.

LIV. As the actual amount of work to be done in each example of Test 8 is the same as that of Test 7, the decrease in amount of work done is due wholly to the reasoning. The reading involved in reasoning problems is not a large factor in the difference. An able person should work at the same rate in the two tests and the ratio based upon the Standard Scores is 1.4. That is, the relation of the reasoning work to the abstract work in the New York schools, as measured by these tests, is but 61 per cent. of the relation called for in the Standard Scores.

An analysis of the mistakes made in Test 8 yields important information. In Table LV are given the data from a comparative analysis of mistakes in Examples 1 and 2. For Example 1 the results for four types of mistakes are given. T means that it was impossible to tell what the child was trying to do, that the example was totally wrong; F indicates a mistake in the computations; S, a mistake of substituting one operation for another, and M, carelessness. For Example 2, L is added

Table LIV—Comparison of 8B Grade Averages in Tests 7 and 8

	ATTEMPTS		RIGHTS	
	Boys	Girls	Boys	Girls
Test 7, 12 minutes.....	15.9	16.3	10.5	11.1
6 minutes (computed)...	7.9	8.1	5.2	5.5
Test 8, 6 minutes.....	3.8	3.4	2.4	2.1
Ratio.....	2.1	2.4	2.2	2.6
Standard Ratio.....	1.5		1.3	

for mistakes in which the child has used all the numbers in the problem, or has selected the wrong numbers.

The results show that some progress in reasoning is made. The number of mistakes that cannot be analyzed decreases rapidly and tends to disappear. The same is true of mistakes due to use of the wrong operation. On the other hand, the mistakes in work are fairly constant, although on a per cent. basis the relative number increases. It must

Table LV—Analysis of Mistakes in Test 8, Reasoning

## EXAMPLE 1

GRADES	ATTEMPTS	TOTAL ERRORS MADE		T TOTALLY MISUNDERSTOOD		F MISTAKES IN COMPUTATION		S MISTAKES IN SUBSTITUTION		M MISTAKES IN CARELESSNESS		L MISTAKES IN SELECTION	
		Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.
4A	94	89	95	57	64	10	11	8	9	3	3	..	....
4B	66	66	100	14	21	13	20	29	44	2	3	..	....
5A	73	47	64	10	21	11	23	19	40	0	0	..	....
5B	58	48	82	5	10	20	42	13	27	4	8	..	....
6A	87	38	44	8	21	13	34	9	24	1	3	..	....
6B	98	39	40	4	10	25	64	4	10	2	5	..	....
7A	67	28	42	5	18	11	39	3	11	4	14	..	....
7B	53	16	30	2	12	11	69	1	6	1	6	..	....
8A	101	23	23	6	26	14	61	0	0	0	0	..	....
8B	56	10	18	1	10	7	70	1	10	1	10	..	....

## EXAMPLE 2

4A	76	77	101	71	92	0	0	1	1	0	0	3	4
4B	48	51	106	27	53	3	6	2	4	1	2	15	31
5A	56	53	95	27	51	1	2	3	6	0	0	21	40
5B	47	47	100	15	32	5	11	9	19	1	2	16	34
6A	64	46	72	22	48	4	9	3	7	2	4	14	30
6B	85	69	81	22	32	12	17	8	12	1	1	24	35
7A	50	40	80	11	27	5	12	7	17	2	5	14	35
7B	42	28	66	9	32	5	18	2	7	2	7	9	32
8A	85	45	53	13	29	11	24	4	9	3	7	13	29
8B	42	24	57	2	8	3	12	5	21	1	4	12	50

not be supposed, however, that the accuracy is low in this work, for, on the basis of computations alone, the accuracy of work is higher than in Test 7. The reason for this is probably (1) the greater time and care given to the thorough understanding of the examples, and (2) the slower rate at which the examples were worked.

In the results from example number 2, the decrease in the per cent. of mistakes that could not be analyzed is accompanied by an inverse change in the number of mistakes in selection; that is, the children do not succeed in getting the problem right, although the change represents a step in advance. The ability to make the selective judgment called for in the example seems to the writer an important one; the perception of relation and the selection of material related to a given purpose are so much higher forms of mental activity than mere response to stimulus. Judged by the number of mistakes made, little increase in ability of this sort is made in these schools. It should be evident, therefore, that very many problems worthy of study are to be found in the reasoning work.

#### Value of Life Histories

As the final illustration of this section, Fig. LI is presented—the graph of the records of three individuals of the same class measured repeatedly with the same test (Test 3, multiplication) and under the same conditions through three school years. The importance of such “life histories” in making plain the play of the hidden forces that are constantly modifying the results of effort on the part of individuals can hardly be overestimated. To one who knows the children, and the conditions under which they worked, the curves in the figures are full of meaning. If the lives of even a small number of children could be closely studied, from the earliest school years through to maturity, the gain in scientific knowledge of the factors making for individual efficiency would be very great.

In the figure, A, B, and C are the curves of three girls of very different types. A is a healthy, vigorous girl, as strong mentally as physically, a natural leader, whether in intellectual work, in play, or in mischief. Her school marks are usually high. B is less vigorous physically, but more conscientious, a good student, but not brilliant, passive and amiable, but not aggressive. C in health, vigor, and possibilities seems the equal of A, but in her lack of responsiveness to school conditions and to her teacher's efforts, in her laziness, her general smartness and industry in inventing excuses and methods of avoiding assigned tasks, in her ideals generally, she is quite the opposite of the other two.

In September, 1909, when the record begins, the relative abilities of two of these girls, B and C, were nearly the same—both being at the bottom of the class, which, at this time, ranked as sixth grade. B had been ill and out of school part of the year before. During November and December, for nearly six weeks, the class devoted a drill period of five minutes a day to work on the multiplication tables. Sometimes the work

was oral, sometimes written, sometimes visual. The class average at this time rose until the score in multiplication was higher than for any other operation, as may be seen by following the dotted line in the smaller figure.

A responded readily to the drill, B slightly. C was absent on the days the tests were given, both before and after the Christmas vacation. As no further drills were given in multiplication during the year, A lost during the next term, gained slightly the last of the year, and lost heavily during the long summer vacation. B, on the other hand, gained during the second term, and held the level reached, so that at the opening of school, September, 1910, A's score showed a small net gain, B a large gain, and C also a small gain. At this time the tests were changed slightly, and automatic timing introduced to eliminate any possibility of the differences being due to faulty timing. To A the new tests were much easier, to B a little easier, and to C a little harder.

Commencing in October, a test was given every day for a week, then once a week through the rest of the term. The examining work was done by the same person, under the same conditions, and at the same time every day. A again responded to the practice with marked gains which she held pretty well through a year of constant drill in multiplication, and in the other tables, in an attempt to make high scores set as standards. Her loss, through vacation, was less than the previous summer. B, as before, showed only small gains under constant practice, but her scores rose rapidly when the amount of the practice was not so great. Her loss through the Christmas vacation was not recovered until the spring vacation, but, from that time on to the end of the year and through vacation, the gain was marked. This was a time of marked physical growth also.

C showed more growth under practice than during the previous year, but, as her scores became stationary at a point less than half the standard score, she was made to take individual drill of five minutes a day under the care of a special teacher. Her scores at once began to rise, and the practice was continued until the close of the year, when C's scores were higher than those of the other two. During vacation, however, half of this gain was lost.

The test, September, 1911, showed B above A, and C, although much below the other two, considerably higher than at the beginning of the previous year. The investigation to determine standard scores, which was completed during the 1911 vacation, had proved that the standards used the previous year had been much too high. Accordingly, during the year 1911-12, after a short period of drill at the beginning, little attention was paid to the tables. The unexpected absences of the writer from the schools at times when the other tests were to have been given prevented the completion of the records at vacation times. The final tests show, therefore, simply the standings at the close of school. Note that C and A responded readily at the first of the year. C showed

marked improvement, not only in this test, but in all her arithmetic work. The slump that led to the low final score did not set in until about a month before the close of the year. B's loss during the term is easily accounted for. Through sickness in a lower grade she had dropped behind her class, but, with the return of physical vigor, and with awakened ambition, she took on extra work, and will, in the fall, enter the second grade ahead, her old class. Whether or not the strain of extra work was wise cannot be told as yet.

The thoughtful reader will see in these records the application of very many of the points discussed in this and the foregoing sections of the report. He will note repetitions of the same scores in successive tests when conditions are uniform; the rapid rise under practice, particularly after loss. He will see that rapid gain is followed by corresponding losses, and will appreciate the importance of each child's making the standard growth in each grade, if steady, positive advance is to be made without strain. The growth called for in the standard scores is not great from grade to grade, but the final ability is high. The reader will doubtless also have noticed the selective response of individuals to the various conditions, and will understand that, for effective control, *all* the major factors in intellectual growth must be controlled by the school. A girl whose scores decline under school drill is probably in no proper state to undertake additional work. What may be the price in loss of physical health that is paid for mental overstrain at critical periods in some children's development, we may some day realize.

Too much significance should not be attached to the results shown in the record. It should be remembered that they are not systematic scientific records of the abilities of these girls taken for the purpose of studying their growth from year to year, but chance records taken at separate times, and for different purposes, here thrown together and interpreted in the light of the writer's knowledge of the details. Nevertheless, they serve to point the way along which the road to full knowledge lies.

Finally, the significance of standards as a means of comparing and coördinating the work of different types of educational institutions should be appreciated. The child that is shown by school records through many years to have reached and held a standard score, the child that has acquired in the elementary school a standard equipment of fundamental tools (the three R's), and has applied them successfully in the higher fields of work in the high school, will be found to acquit himself satisfactorily in college, or in any other field of work to which his inclinations may lead him. It is the opinion of the writer that in standard tests and standard scores, both of achievement and of growth, will be found the solution of very many of the educational problems of the day.

### Conclusions

The illustrations presented in this section should make it plain that the results from comparative tests have a greater value than the mere benefit to teacher or class. Nor are these uses mutually exclusive. On



the contrary, by proper organization of experimental work, by proper planning of the supervision and coöperation a large amount of most valuable work could be done as regular school exercises. The organization of such work, its scope and character, together with the recommendations based upon the results of this investigation, are considered in the next section of this report.

### Section VIII

#### Recommendations

##### General Significance of Investigation

To the reader who has given due consideration to the evidence presented in the preceding sections of this report the formulation of recommendations will probably seem a simple matter. Many suggestions for sweeping changes will undoubtedly have occurred to him as they have to the writer. If he be an honest reader, however, honest with himself and true to scientific principles, he will see, upon analysis of the situation, that the results of the investigation have merely revealed a condition; that whether or not any change that might be proposed would really be a change for the better cannot be predicted with certainty when the effects of many of the factors involved are unknown; that to make sweeping changes, or changes of any sort, merely because the new plan *seems* to be the logical solution of a recognized difficulty is to miss the point entirely. For the seemingly logical and the actual may bear no relation to each other, owing to the effect of unrecognized factors.

The writer hopes that the data from the testing work have made it plain that the product of arithmetic teaching in the New York public schools is an exceedingly variable quantity; that, so far as the fundamentals are concerned, the ability of an individual is in no way defined by telling his class, grade, or school. Whether he be in a low grade or high, whether he has had the worst teacher or the best, or has attended all his life the poorest school or the one with the best reputation, the data herein presented show that it will be impossible to predict his probable scores, except in terms of a variability that covers the entire range of the scale.

As to character of work, it is possible to be a little more specific. The average child in New York City will be able to do abstract work rapidly, but inaccurately; simple reasoning work, slowly. That these conditions are unsatisfactory may be granted without discussion; also that changes should be made. The individual variation should be controlled, accuracy should be secured without sacrificing speed, reasoning ability should be developed. So far the way is clear.

##### General Recommendations

The recommendation of specific changes to accomplish these ends, however, is another question. For the evidence is plain that the response of children to any situation is determined by the laws of their

own mental action and development. Consequently, the really significant products of the investigation are not that conditions are unsatisfactory, but (1) that efficiency is dependent upon the control of factors whose number and effects are, at present, unknown; and (2) that the information needed can be obtained through comparative tests and educational measurements. The recommendation of the writer is accordingly that systematic experimental work in testing and measurement be undertaken for the purpose of securing such essential knowledge. The remaining paragraphs of this section are but elaborations of this one idea; for, of necessity, the first work must be to determine, as completely and as precisely as possible, just what school work is at present accomplishing. For only as a base for comparison is secured can estimates of improvement or deterioration be formulated.

Any expectation of higher efficiency depends on the acquisition of knowledge of two sorts—that which tells the characteristics, growth, and needs of the child, and that which has to do with the actual process of teaching. Each of these, with its resultant problems, will be considered; but, while the attempt will be made to cover briefly the whole field, only those problems will be emphasized which have a bearing on the teaching of arithmetic.

### **Specific Recommendations**

Child study is a term of varied meaning. That which is studied about a child is determined by the purpose of the study. For improvement of teaching effort, a point of view must be adopted which makes of the child the raw material upon which the educational process acts, and by whose characteristics the process itself is conditioned. Yet the child is a living organism. He is the product of the past; he lives and is changed by his living; he grows toward the future. The first problems must be, therefore, to determine what features of the child's past and present social and mental life react on school work, and how they can be controlled.

### **Experimental Determination of Relation of Social Condition and Ability**

It is the common experience of mankind that children differ in ability. This granted, it would seem wise to determine how much they differ, and what adjustments it is necessary to make to such differences. It will be apparent at once that, in school, adjustment can only be made to gross differences in ability; but, from such differences of parentage and social station as are found in the city, such gross differences in mental ability are likely to arise. It is recommended that a study be made of the relation between the race, nationality, and social conditions of children, and their scores and growths in standard tests. For it is certain that many teachers and principals are attempting the seemingly

impossible in trying to follow through with children of poor and foreign parents the course that is thought too difficult for even the more favored.

### **Material Available for Reasoning Work**

It is further recommended that a study be made of the social life of all types of children, to determine the material available for problem work. For reasoning cannot be taught from a text alone. Reasoning is a process of adjustment to a situation, and, only as children have experienced the fundamental characteristics of a situation, can they intelligently make the necessary adjustments to it. At present teachers and principals collect such material, so far as this is done at all, for themselves. Systematic work of wider scope is needed, so that, where marked differences in the social life of the different types of children exist, they may be reflected in the schools.

### **Physical and Mental Growth**

Another factor conditioning the school work in arithmetic and other subjects is physical condition and physical growth. It is recommended that a special study be made of the relation between physical growth and mental growth, as measured by standard tests, so that, if the two are related, the proper adjustments may be made in school programs. This is, probably, one of the factors having the largest, but an obscure, influence in school work, and may be of very great importance.

### **Future Needs**

The determination of standard scores and standard growths should be made not alone upon a basis of scores actually made by children, but upon the abilities each child is likely to need. Here the determining conditions are again social. It is recommended that systematic study and examination of individual children leaving school to go to work be carried on for several years, both that the needs of the different classes of children may be determined, and that the changes following the close of the school work may be measured.

### **Determination of Efficient Methods**

From the standpoint of the teaching process itself, next to standards, the most important problem is that of ministering to the needs of the individual. That this is a tremendous problem, whose solution will take many years, is conceded; but that the final solution will be hastened, if the work is started at once, is also true. Children must be taught in groups, and children must receive individual care and instruction, when needed.

To meet these two opposing conditions, compromise is inevitable, but special methods are already beginning to appear. The use of the comparative graph in this connection was discussed above. Another device that, in some cases, has proved very effective, is that of placing one or two teachers in a school, but assigning them no regular work. Such unassigned teachers devote all their time to work with individuals sent to them from any class for help on particular points. It is recommended that the efficiency of these various devices be measured.

The best method of developing both speed and accuracy in abstract work should also be determined experimentally. Specifically, four groups of children should be formed, one thousand children to a grade, grades 3A to 8B inclusive, 48,000 children in all. The basis of selection should be the scores made in a formal test at the opening of school in September, the four groups being so selected as to be of equal ability, grade by grade. One group should be used as a control and should carry out the regular work *without changes of any kind*. Comparisons of the growths made in the other groups with that of this group would show the merits or demerits of the changes made in the work of the other groups.

One of the three remaining groups should work for speed. Standard scores in speed should be set for each grade, and speed tests should be used each day as practice exercises. Emphasis should be placed on speed of work, but to avoid the evil effects of over-drill, as soon as a child is able to make the standard score in speed, the accuracy of his work should be determined, and he should then strive to reach a standard score in accuracy slightly (say 5 per cent.) greater than the accuracy of his past work without in any way decreasing his speed. In other words, the *number* of examples of a given kind *completed* in a given time should be determined *first* each day. If the speed falls below the standard the accuracy of work should not even be determined. If, however, the child equals or exceeds the standard speed, then accuracy should be considered, reasons for inaccuracy determined, and definite corrective work undertaken if the need for it is discovered. Any attempt to work at a higher speed than the standard should be discouraged by increases in the standard for accuracy. In other words, in this group standard speed would be attained by all, but development in accuracy would vary from individual to individual.

On the other hand, in one of the other groups exactly the opposite procedure should be followed: standard accuracy would be attained, but development in speed would vary from individual to individual. A high degree of accuracy (say 100 per cent. or at least 90 per cent.) should be adopted for all as the standard, each child being allowed to work at his own rate. Each day the accuracy of work should be determined first. When any child attains the standard accuracy he should have his speed of work considered and attempt to make a slightly higher score in speed (say 5 per cent.) without sacrificing accuracy.

In the third group speed and accuracy should be developed together. In the very first test the children should be warned that speed and accuracy are both important, and that they are to choose a speed of work that will enable them to work at a reasonable degree of accuracy, leaving the definition of reasonable to the individual. In the resulting scores both speed and accuracy should be determined, and in the succeeding tests each individual should attempt to make slightly higher scores in both speed and accuracy. If any child succeeds in making the increase in one quality and not the other, he should concentrate his efforts upon the one in which he is lacking until both increases have been attained. In this group, therefore, speed and accuracy would increase together.

A formal test, similar to the initial test, should be repeated each half year, and the growths of the four groups compared. In all groups systematic records of the time devoted to the work should be kept. In fact the experiment should be carefully supervised throughout. Full explanations of the plans and results to teachers should be made, systematic training of those teachers unable to grasp the essential ideas or to initiate methods of their own should be undertaken, and above all, the experiment should be continued through two full years to measure the effects of the vacation period upon the resulting products. Such an experiment, ably carried out, would do more to determine once for all the plan of work best fitted to each grade to insure both accuracy and speed than all the academic discussion that could be devised.

It will be objected by some that the years of childhood are too few and too precious to be wasted in experimental trials of new and possibly injurious methods, etc. To all such objections, based for the most part on fundamental misconceptions of the purpose and extent of the experimental work planned, many answers can be made. (1) No general reorganization of school work is called for in such an experiment: the time required would not be over ten minutes a day and the rest of the work in Arithmetic would proceed as usual. (2) The experience of the writer tends to prove that all three experimental groups would show much larger growths than the control group. The stimulating effects upon the teachers of new methods of work, new points of view, would far outbalance any injurious effects of a poor method, while the gain, if one method proved very much superior to the others, would not be a small gain for a few children, but a permanent gain in educational knowledge that would be a benefit to all our present schools and to all future generations of children. (3) The present course in arithmetic and all future courses that do not rest upon accurate experimental data are only *unchecked* experiments based upon opinions merely, and confirmed and overthrown by opinions also. Witness the suggestion that the new course of study in arithmetic now (July, 1912) under consideration be tried for a year *in all* the schools of the city to determine its merits. Its real merit or demerit depends upon the effects produced

upon the children, and to determine those effects even a city of New York's wealth and opportunities has by its own confession nothing better than the opinion of the very people by whom the course is being designed. The labors of Rice and Stone, as well as the results of this investigation, make it certain that no such changes in the course of study as are proposed can effect more than a very slight improvement at best in the general efficiency of the work as long as the fundamental factor of individual differences is neglected. (4) As a final argument, it should be remembered that, in view of the effort, time and money expended, conditions could scarcely be worse; that any systematic, conscientious effort along a new line is sure to be slightly better, and that any discovery of fundamental laws is certain to lead to a new era of progress.

Other control experiments of similar character are recommended. The determination of whether oral drill or written drill is the more important is one; the effect on Test 7 of daily practice on the tables, as compared with the same amount of practice in abstract examples, similar to Test 7, is another. Similar experiments to determine the relative merits of oral and written work in speed reasoning upon the problem work in Test 8 are particularly recommended. It is probable that great improvements could easily be effected in reasoning.

#### **Bureau of Investigation and Appraisal**

It is evident that any attempt to put these recommendations into practice would involve teachers and schools in much extra work and useless confusion unless the experiments were well planned. At the same time, the importance and necessity of the work make it imperative that such experiments be carried out. Accordingly, it is recommended that a new department be created—a Bureau of Investigation and Appraisal.<sup>1</sup> The experimental work of this nature, already undertaken by many smaller cities, the plans for the coming year in two of the larger cities,<sup>2</sup> suggest that New York City is not making the most of its wonderful opportunities to profit by similar work.

In bringing this report to a close, the writer wishes to emphasize again the true significance of the investigation. It is, that, in spite of the expenditure of millions of dollars yearly, in spite of hours of labor and years of effort, the gross inefficiency of present conditions is caused by lack of exact knowledge of conditions acted upon and of effects produced. That this need no longer be true the writer believes the evidence presented proves beyond question. The one thing lacking is organized effort along similar lines, on such a scale and for such a period, that conclusive results may be obtained.

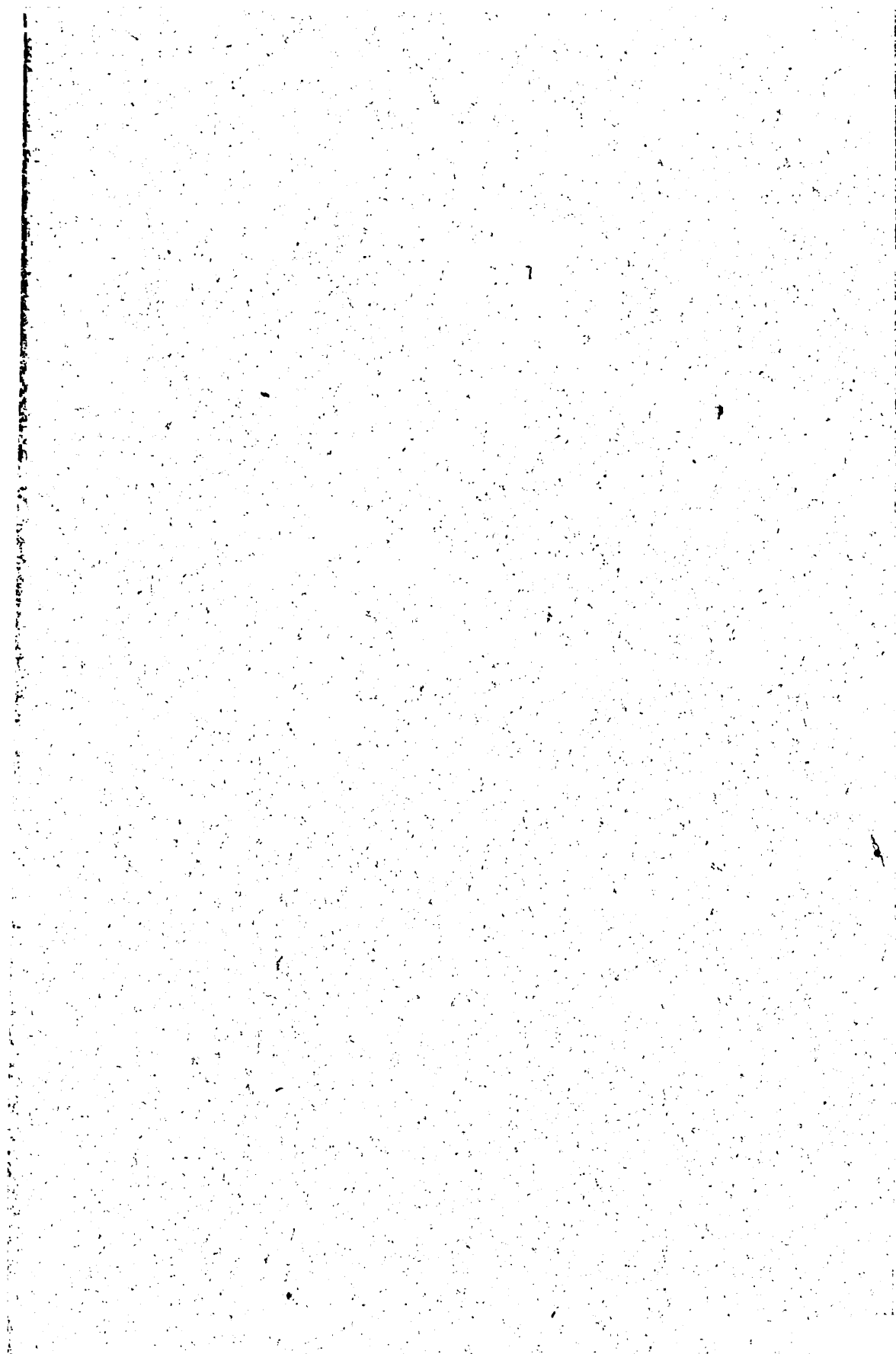
<sup>1</sup> See Professor Elliott's recommendation in his report.

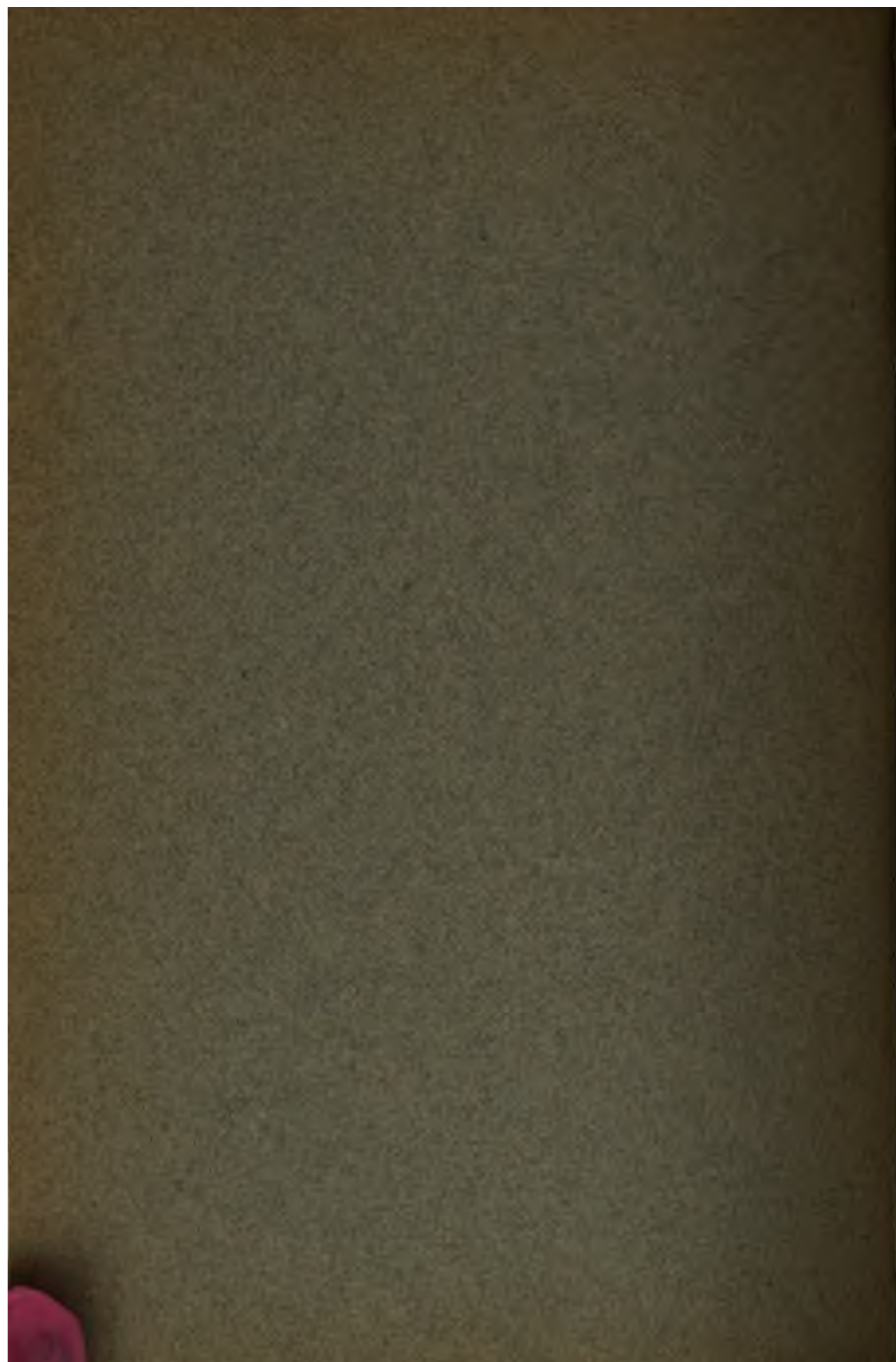
<sup>2</sup> Detroit, Mich.; Boston, Mass.











# INTERIM REPORT

## Committee on School Inquiry Board of Estimate and Apportionment

*Embracing*

1. Letter of Transmittal
2. Excerpt from "The Report as a Whole"
3. Report upon "Ungraded Classes"

By PROFESSOR PAUL H. HANUS

By DR. H. H. GODDARD

Director, Department of Psychological Research, New Jersey Training School  
for Feeble Minded Boys and Girls

*Committee on School Inquiry*

JOHN PURROY MITCHEL

*President of the Board of Aldermen*

WILLIAM A. PRENDERGAST

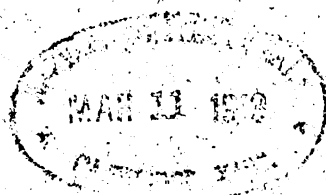
*Comptroller*

CYRUS C. MILLER

*President of the Borough of the Bronx*

CITY OF NEW YORK

1911-1912



Prof. P. H. Rans,   
Cambridge

FEBRUARY 3, 1913.

*To the Honorable, The Board of Estimate and Apportionment:*

GENTLEMEN :—The Committee on School Inquiry herewith transmits to your Board a section of the report upon the educational aspects of the school inquiry, being a monograph by Dr. H. H. Goddard, Director, Department of Psychological Research, New Jersey Training School for Feeble Minded Boys and Girls, upon "Ungraded Classes." Prefixed thereto is printed the section of "The Report as a Whole," prepared by Prof. Hanus, which deals with the subject matter of the accompanying monograph.

The monograph transmitted was first sent to the printer by Prof. Hanus in the form of manuscript on June 21, 1912, was transmitted by the printer to the writer and Prof. Hanus for revision on June 27, 1912. Since that time, the monograph has been undergoing revision by the writer and by Prof. Hanus and correction by the printer, and was received by your Committee, with the final approval of the writer and of Prof. Hanus, on January 7, 1913.

Respectfully submitted,

JOHN PURROY MITCHEL,  
*President Board of Aldermen.*

WM. A. PRENDERGAST,  
*Comptroller.*

CYRUS C. MILLER,  
*President, Borough of The Bronx.*  
Committee on School Inquiry.



**EXCERPT FROM**

## **"THE REPORT AS A WHOLE"**

**BY**

**PROFESSOR PAUL H. HANUS**

### **(2) Ungraded Classes**

The magnitude and seriousness of the problem of caring for mentally defective children will be appreciated when the city realizes that the number of such children in the public schools is not less than 15,000, while there are only about 2,000 in present ungraded classes; that the presence of such children in classes for normal children seriously handicaps both teachers and pupils; that the means of discovering defective children and segregating them and caring for them, so far as they are segregated, are at present inadequate and defective; and, finally, that the danger of allowing such children to grow up at large is very great. Such persons not only become a burden to society themselves, but propagate their kind in large numbers by marriage or illegitimate unions with each other or with normal individuals.

We have not discussed the question whether these unfortunates should be discovered and cared for by some other agency than the public school system, say the Board of Health, but the question is deserving of serious consideration. The question is, of course, whether the problem is principally medical or educational. Up to the present time, the public school system has been charged with caring for defective children. The report accordingly deals with the way in which the schools are carrying this responsibility, and offers suggestions for future procedure.

Nearly all of the ungraded classes were visited. Much is being done, but much more must be done in the interest of the normal children and of society at large, as well as the defective children themselves. The entire treatment of defective children is at present inadequate, owing to inadequacy of the means and methods of recognizing mental defectives, particularly the high-grade type; and there is great waste of time and effort in the present ungraded classes, owing to the attempt to teach defective children reading, writing, and arithmetic, which they will never learn well enough to use, instead of vocationalized manual train-

## EDUCATIONAL INVESTIGATION

ing and other forms of industrial work; and many of the children are not getting what they might get because of lack of proper classroom equipment and materials. All this is largely due to the lack of adequate organization, administration, and supervision for the proper discovery and treatment of defective children, together with the lack of trained teachers.

We accordingly recommend a radical enlargement and extension of the work of the ungraded classes—a Superintendent of Schools and Classes for Defectives; at least four additional associate inspectors; five examiners (psychologists and physicians) to discover and classify defective children; the segregation of the ungraded classes in special schools as fast as possible; the prompt and adequate equipment of the ungraded classes with the appropriate materials for instruction; the establishment as rapidly as possible of the right kind of training schools for teachers of defectives, the amendment of the child labor law so that defective children may go to work as soon as it is clear that they would be more profitably employed at work than in school—provided such children cannot be placed in an institution or colony for permanent segregation; a substantial increase in the bonus now paid to teachers of defectives who show growth in efficiency; and especially we recommend *a*: the appointment at once of a number of special assistants whose business it shall be to follow up the history of defective children after they have passed through the schools, in order that the facts of their lives may throw light on their satisfactory care and treatment; whether these should be educational, medical, or custodial, or all three combined; for their own welfare and the welfare of society; and *b*: adequate, i. e., greatly increased expenditures. The cost of carrying out these recommendations will be much greater than the present expenditure. But, *whatever it costs*, the city cannot safely perpetuate the present inadequate measures of discovering and caring for its mentally defective children, and run the further risk of allowing the present progressive increase of mental defectives to continue unchecked.



REPORT ON  
EDUCATIONAL ASPECTS OF THE  
PUBLIC SCHOOL SYSTEM

OF THE CITY OF NEW YORK

TO THE

COMMITTEE ON SCHOOL INQUIRY  
OF THE BOARD OF ESTIMATE  
AND APPORTIONMENT

PART II

*Subdivision I*

*Elementary Schools*

SECTION E.—UNGRADED CLASSES

BY

DR. HENRY H. GODDARD

Director, Department of Psychological Research, New Jersey Training School  
for Feeble Minded Boys and Girls, Vineland, N. J.

CITY OF NEW YORK

1911-1912



## UNGRADED CLASSES

### I. Conditions Found

In the year 1900 the first ungraded class was started in Public School No. 1, Manhattan. In 1906 there were fourteen classes in Greater New York. Since that time the enormous growth of these classes is in itself sufficient indication of the size of the problem and the reason for many shortcomings.

In 1906 a special inspector of ungraded classes was appointed. The duties of this inspector were to superintend the establishment of these classes, to secure teachers and decide what children should be placed in the classes, together with general oversight and direction of the work. Beginning, as we have said, with fourteen classes in 1906, there were forty-one classes in 1907, sixty-one in 1908, eighty-six in 1909, one hundred and three in 1910, one hundred and twenty-six at the beginning of 1911, and at the present time (April, 1912) there are one hundred and thirty-one.

One hundred and twenty-five classes were visited. The one hundred and thirty-one classes are located in ninety-five public schools. In other words, less than one-fourth of the schools of New York have ungraded classes. As a rule there is only one class in a school. Fourteen schools, however, have two classes each, two schools have three classes each, one has four, and one school has six classes. Altogether there are nearly 2,500 children in these ungraded classes.

### How are the Children Chosen for These Classes?

Principals of schools are asked by the City Superintendent to give their "personal attention to the conspicuously backward children; to those who apparently are unable to learn to read; to those who have very deficient number sense; to those who are truants or show a tendency to the habit; to those who seem incorrigible; and to noticeably irritable, nervous children."<sup>1</sup>

The principals rely largely upon the estimate of the teachers. Had the principals and teachers carefully heeded Dr. Maxwell's circular letter a much larger proportion of defective children would have been reported.

<sup>1</sup>Elementary School Circular No. 2, September 19, 1911.

Here we meet the first great difficulty in our problem of adequately caring for the backward child. For many reasons the grade teacher is unable to properly decide the mentality of the child. In the first place, she has never received any training in this problem, and whatever she happens to know has come either through her observation or through her incidental information in regard to normal and dull children. But she has always been led to believe that dullness in children was due to their environment or their treatment; and that they would eventually outgrow it, or that by sufficient work on her own part they could be brought up to grade. In other words, she has divided her children into *idiots* and normals; the first group containing those that are obviously defective as evidenced by physical condition, appearance of stupidity, or absolute inability to comprehend anything in school. The other group includes all the rest of the children—those who are normal, those who are exceptionally bright, and those who are dull or slow.

We now know that a very large proportion of those children who are thought by the teacher merely slow, or deficient in some one subject, are really mentally deficient; and while they may, because of having a fairly good memory, make some progress in some subjects or activities, they nevertheless can never be normal children, and should really be in ungraded classes.

The second thing that interferes with the proper selection of the children is the pride of the teacher or the principal of the school. Teachers have sometimes felt that it was a confession of failure to acknowledge that a child could not be brought up to grade. Principals have been proud that their schools were reasonably free from stupid children.

Still a third reason is that mental defectiveness is often complicated with physical defect; and it is practically the universal custom to lay stress upon the physical defect, and conclude that if this were removed the child would be normal and develop properly, and that it was therefore wrong to put such a child in the ungraded class. On the other hand, conditions that are only temporary or individual idiosyncrasies are sometimes mistaken for signs of permanent mental defect, with the result that children are placed in these classes who are not defective; who are really almost normal, but have been mistaken by the teacher because she has been unable to understand them. The result of all this is that the nearly 2,500 children now in the ungraded classes, while largely feeble-minded and institution cases, nevertheless include some that are really of normal mentality and should not be in these classes, but should rather be in the progress classes—the E classes—among those children whom special attention will bring up to grade. This condition of having in the ungraded classes children whose mentality ranges from that of a three-year-old to the mentality of a normal child is very disadvantageous, and makes the work of the class unduly difficult for the teacher, and expensive for the system.

We have found, for instance, in these classes, imbeciles of mongolian

type, microcephalic idiots, hydrocephalic cases, cretins, a large number of middle and high-grade imbeciles, and also a large number of morons (defective children of the mentality of a normal child of from eight to twelve years).

These classes are officially designated as classes for mentally deficient children, and yet there is a very general effort on the part of the principals and teachers to get some of these children back into the grades. This lack of uniformity in policy is unfortunate. That little is achieved under such circumstances is shown by the results. In answer to the question, "How many of these children have you sent or will you send back to the grades?" even the teachers themselves, with all their optimism, seldom say anything better than "one or two." "In the history of the class of five years, we have sent back five to the grades." Teachers of the grades who have taken these children back sometimes reported that they ought not to have been sent back.

Whether the examiner who decided what children are to go into these classes ignores the fact that these classes are for mental defectives, or whether the normal children who get in are cases of "mistaken diagnosis" should be ascertained by the Department of Education.

#### **What is Done for These Children in the Ungraded Classes?**

The usual program is the three R's in the forenoon, and some form of handwork (manual training) in the afternoon. Nearly all of the experienced teachers and the principals are agreed that this bookwork is largely wasted upon these children; but they feel compelled to try to do this because it is the tradition of the system, and because the parents insist that their children shall be taught to read and write.

Here is our second great difficulty in the problem. If some of these children can be taught reading, writing, and numbers to such an extent that they can make intelligent use of what they learn to increase their efficiency later in life, then it certainly should be done, even though it is slow and laborious. If, on the other hand, the work that they do is merely parrot work, and because of their good memories (many have them) they are able to make certain associations and able to read out of a book after they have studied it a long, long time, and can perform certain numerical operations, but are unable to apply them, and have no real understanding of what they are doing, then all of the time devoted to this is wasted, and worse. Which view is correct? Opinions are divided. Most of the people who are familiar with the feeble-minded child as he is found in institutions and in the *Hilfsschulen* of Germany and the Special Classes of London believe that the children in the ungraded classes of our city belong to the latter group; that is to say, they believe that it is wrong to attempt to teach such children any of these matters.

The only way to solve this problem is to appeal to experience. Had a careful record been kept of every child who had been in the ungraded



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with possibly one or two that are normal. Under such conditions it is unreasonable to expect any satisfactory procedure. In a few schools very satisfactory work is being done in spite of all the handicaps. The conditions are the result of a situation which has grown rapidly and which no one adequately understands, but which can only be set straight by a careful study of the conditions and an appreciation of the situation by teachers, superintendents, supervisors, and the Board of Education, and lastly the public and the taxpayer.

### **Who Are the Teachers of the Ungraded Classes?**

Our third great difficulty in this problem is to secure teachers for these classes. It is practically impossible to obtain an adequate supply of trained teachers. There are only a few places in the entire United States where persons can get anything like an adequate training. Institutions for the feeble-minded should be the model schools for teachers that are taking training in this line of work, and these institutions very rarely train teachers other than their own; and those persons who teach in institutions for the feeble-minded are seldom willing to leave those positions for public-school positions. There are now several places where instruction on the theoretical side is given. But without actual acquaintance with feeble-minded children of all types the teacher is left as the physician would be who has gone through his medical course but has had no laboratory or hospital experience.

In the absence of such trained teachers, the next best thing has to be done. The grade teachers of three years' experience are encouraged to take the special examination for teachers of these ungraded classes. They are then transferred to those classes to work out their salvation as best they may. The difficulty here is the difficulty that we always meet when we encounter anything like a civil service examination or a fixed examination of people for these positions. No one has yet discovered any sure way of selecting the right person by means of a fixed examination. The result is that we have found certified teachers in these classes who are in no way fitted for the work. On the other hand, we have found people who are teaching as substitutes, having failed in their examination, who are nevertheless doing excellent work. It should be said that the teachers are, as a rule, faithful, conscientious, interested in their problem and very largely more or less cognizant of the problem. The most hopeful sign is that nearly all of them are painfully aware of their own lack of training and their own inability to do for the children what they feel might be done. A few teachers are utterly incompetent, and some of these are substitutes.



### Who Supervises Ungraded Classes?

This is the next great difficulty. There is little or no supervision of these classes. The inspector of ungraded classes has other duties absolutely incumbent upon her which require so much of her time that little is left for visiting classes and helping the teachers. The inadequacy of the present plan of supervision will be realized when it is remembered that the principal of a school with no more than thirty to sixty classes is considered to have enough to do, and usually more than enough. But his classes are all under one roof. The inspector of ungraded classes has one hundred and thirty-one classes scattered all over Greater New York—some of them requiring a great deal of time to reach by the usual means of transportation. Would it not be a matter of simple economy to furnish the inspector of ungraded classes with an automobile which could take her in the least possible time to the various schools?

The principal of the school in which the class is placed has no official responsibility. It is true that in many cases these principals are so interested that they have informed themselves somewhat on the problem, and in one way or another, they have acquired a great deal of wisdom on the subject and are very helpful to their teachers. Nevertheless, this is accidental and is to the credit of the principal rather than the system. That some principals do not feel this way about it is evidenced by one who, in reply to the question, "What suggestions have you in regard to the ungraded class?" said, "I have nothing whatever to do with it. The Board of Education has a specialist who takes entire charge of this class. If you ask me about my regular grades I can tell you anything you want to know, but with the ungraded class I have nothing whatever to do." This frank statement, although unusual, is an entirely justifiable position. We have no right to expect that a principal who has from thirty to seventy-five classes in his building—from 1,000 to 3,000 children—shall also add to his responsibilities the problem of dealing effectively with the feeble-minded child and make himself an adequate supervisor of such work. That every principal who has such a class in his building ought to know enough about the problem to give the teacher free rein, and help in the matter of material, program, etc., is true. But adequate and effective supervision by the principals is more than the public has the right to ask.

The rooms in which these classes are accommodated are, like the children in the classes, of all grades from the lowest to the highest; that is to say, from small, dark, dingy, inadequate rooms up to large, light, airy, well-located—in short, the best room in the building, as several principals have proudly declared. On the whole, the rooms are good. There are a large number of excellent rooms; only a few are poor, and these are the best that could be obtained under the circumstances.

A more serious difficulty is the large number of schools that have no ungraded class. In many of these it is again a question of room. In a few schools an ungraded class is very much desired, but there is no place to accommodate it. The only way in which a room could be provided in these schools would be to put some of the normal children on part time, and this is not considered desirable.

Such are the most important facts revealed by personal visits to the ungraded classes.

## II—Suggestions Received

Wherever possible, teachers and principals were asked for suggestions, born of their experience, which might help to increase the efficiency of the ungraded classes. Some of these ideas were so universally held, and others were so significant, that they deserve consideration.

Nearly all concerned, both teachers and principals, feel that these children are institutional cases, that they do not belong in the public school at all, but should be cared for in institutions for the feeble-minded. But when asked the question, "How many parents would consent to these children going to institutions?" they immediately admit that there would be very few indeed, and so the question remains, "How shall they be cared for?" This we shall discuss later.

Many principals and some teachers suggested that these children should be given working papers before they have fulfilled the requirements of the present law. Their argument was this: These children can never learn the amount of reading and writing and arithmetic that is required. If they are, by dint of a great deal of drill, brought up to the point where they may somehow get past the examination, it is still a purely perfunctory achievement, and has done them no good. On the other hand, for many of these children, the very best thing is to go to work where they can be trained by their fathers or mothers or persons who are willing to take charge of them and see that they are trained to do some sort of work; and as this is the only thing that they can ever do and the best thing for them, it is folly to keep them in school a year or two after they are ready for that work. Here again the question can only be satisfactorily understood and settled by the adoption of a comprehensive plan for the solution of the whole problem.

Again teachers and principals feel almost universally that these children, although cared for by the school system, should not be in separate classes in the regular schools; but that centers or schools should be established for these children, so located that they could take all of the children who are now in these ungraded classes, and those that ought to be in them, in a given area; there, brought together in one building, they could be cared for and supervised and directed as necessity required.

Practically all principals were agreed that some more efficient and available means for giving these teachers the material they require should

be provided. Many state that some better method of distributing supplies should be provided for these classes so that they could have the material that they need, of the kind that they need, and when they need it; and not be compelled to spend their own money to get those things that they cannot get along without, and yet which they are not provided with by the authorities.

Practically all principals agree that some better plan for supervision should be provided. They say that it is not in their "line"; that they have not the time to devote to this special work, and consequently they are unable to offer to the teachers the help that is needed.

A few principals complain of the examinations that are required for teachers of this class, saying that excellent teachers are frequently denied a certificate and so their classes are crippled.

A considerable number also complain that children that they recommend for the classes have never been examined; and in some cases that children, whom their long experience has shown belong in the ungraded class, are returned as unfit for these classes, not being sufficiently backward to warrant their being transferred.

And, lastly, many principals say that they could select teachers from their schools that could pass the examinations and would make ideal teachers for these classes; but that the teachers are unwilling to undertake the work, feeling that it is difficult and arduous, and has many drawbacks and that there is not sufficient compensation to induce them to make the change.

All of these matters are important.

### III—Discussion

The conditions discovered and set forth in the first part of this report, together with the recommendations received from principals and teachers, agree with the theoretical view that this problem is much larger than has yet been appreciated. The most extensive study ever made of the children of an entire public-school system of two thousand has shown that 2 per cent. of such children are so mentally defective as to preclude any possibility of their ever being made normal and able to take care of themselves as adults. (See *Pedagogical Seminary* for June, 1911, "Two Thousand Children Tested by the Binet Scale"; by Henry H. Goddard.)

Since this result was obtained by the use of the Binet-Simon Measuring Scale of Intelligence, it stands or falls with the validity of the scale. A word in regard to the accuracy of said scale: The Binet-Simon Measuring Scale of Intelligence is the result of years of study by one of the ablest psychologists of modern times. The scale itself has been tested and retested on groups of children large and small. Practically the only valid criticisms that have ever been made of it have been that it might be improved in some of its details. It has

never been rejected by any one as useless. The only seriously adverse criticisms have been made either by persons who have not used the scale on more than a handful of children or who have not used it intelligently. Those persons who have used it on large numbers of children have declared that the more they use it the better satisfied they are with it. While no one claims for it that the results obtained should take precedence over all other evidence in the case of an individual child, no one has denied that it is able to give us an accurate percentage of normal, backward, and precocious children in any group. With the record that it has made, any attempt to ignore the results as shown by this method would savor strongly of prejudice.

It is indeed startling to read that 2 per cent. of school children are feeble-minded. But every new and unexpected discovery is more or less startling. And in this case the findings are not without corroboration from other sources, for those who are willing to fairly face the facts.

According to this estimate of 2 per cent. there are 15,000 feeble-minded children in the public schools of New York. The only escape from this conclusion would be the assumption that in New York City there is a better condition of things than exists in a small city and rural population in Southern New Jersey. Certainly one who is familiar with conditions in Greater New York would hardly claim that such was the case.

I have examined a number of children in the New York schools by this scale, and am entirely convinced that the 2 per cent. is well within the mark. In the short time that was available for this entire investigation it has not been possible to use the scale extensively or systematically; nevertheless, by careful samplings here and there, results have been obtained which are strikingly significant. I give these results as concisely and clearly as possible.

First, three ungraded classes were examined in toto. These three classes comprised forty-six children, of whom twenty-nine were distinctly feeble-minded, ranging from four to nine years backward. Eight more were three years backward; six were two years backward, and three were one year back. There is every reason to believe that a goodly proportion (with the possibility that all) of the fourteen who were two and three years backward will prove to be feeble-minded; for we have discovered from our study of mental defectives that there is a type of child that slows down until about the age of nine or ten, and then stops; so that many children of eleven or twelve who, by the test, are only two years backward are found to be near their stopping place, and do not develop after that. By the time they are thirteen or fourteen they reveal themselves as distinctly feeble-minded.

We tested also eighty-one children in the special or E classes. Of these, twenty-nine were feeble-minded, being from four to eight years behind; fifteen were three years behind; sixteen were two years behind; fourteen were one year backward, and seven were at age. It will be

seen that in this case more than one-third of the members of these E classes were distinctly feeble-minded. It is not probable that any such percentage holds for the total E classes. Nevertheless, the test indicates, as we would expect, that a large percentage of the pupils in the E classes are mentally defective. There are nearly 25,000 children in the special E classes.<sup>1</sup> It would be a very conservative estimate to say that not 33 per cent. but 10 per cent. of these were defective. This would give us 2,500 defective children in these classes alone.

We examined twenty-two children in the special D classes, those preparing for a working certificate. Of the twenty-two examined twenty-one were from four to eight years backward, being feeble-minded. One was three years backward, possibly not feeble-minded. These were in two schools. In one case the entire class was examined—at least all that were present that day, it being a holiday for some of the children—and the eleven present were all feeble-minded; and the teacher assured us that those who were absent were, in her opinion, much more deficient than any of those present. Likewise, in the second class, where there were twenty-seven enrolled, and eleven were examined, all were from five to eight years back, therefore feeble-minded. In this class also the teacher assured us that the worst cases had not been tested—only the doubtful ones. But ignoring that, and taking only the facts, we still have ten out of twenty-six who are feeble-minded. That is almost 40 per cent. There are in the D classes, 2,461 children.<sup>2</sup> If this proportion holds throughout the D classes of the city, we would have almost 1,000 feeble-minded children in this group alone.

In neither of these groups, the special E classes or the special D classes, is it maintained that we have a sample of the entire group of children. It is entirely possible that these classes in other sections of the city are made up quite differently and would not contain as large a percentage of defectives; nevertheless, the fact remains that in some sections they are made up of defectives, and these children should be in the ungraded classes instead of where they are.

Besides these groups we have also tested a few children from the regular grades in each of five schools, one of these schools already having an ungraded class. Of one hundred and fifteen children tested in the five schools, thirty-three were distinctly feeble-minded, and thirty more were border-line cases. These were, of course, selected cases. In each of these five schools, therefore, we have an average of twelve children that ought to be in an ungraded class, and there is no thought that we discovered all that there were in any one school. Moreover, these schools were located in the upper west side, lower west side, lower east side, Flushing, and Borough of Brooklyn, so that they are fairly representative of the city.

<sup>1</sup> Superintendent's Report, loc. cit.

<sup>2</sup> Thirteenth Annual Report of City Superintendent of Schools for year ending July 31, 1911, p. 55.

Furthermore, we examined, at the request of the teacher, in one high school, five cases that were selected by her. They all proved to be feeble-minded. Asked how feeble-minded children came to be in the high school the reply was, "They are not allowed to stay more than two years in any one grade, and so they are promoted whether they are fit or not, and in that way get into the high school."

I believe that the foregoing figures amply justify the conclusion that there are 15,000 feeble-minded children in the public schools of New York, and even make it probable that that is a conservative estimate. I should add that many a principal has assured me that he has in his regular classes more than enough children to make another ungraded class in his school, and my own observation has abundantly confirmed that statement.

From all of this I conclude that whereas there are now more than 2,000 children in the ungraded classes, and there are ungraded classes in less than one-fourth of the schools of the city, if they all had schools they would thus get 8,000 children on the present basis of selection, but the present basis of selection gets certainly not more than half of the defectives. Therefore, we have a right to double that again, which would give us more than our 15,000.

If, as said above, the proportion does not quite hold in some schools, this would be more than made up by the very high percentage of defectives in some of the other groups—the D classes and the E classes already referred to; also the C classes, those made up of non-English-speaking children. "Non-English-speaking" very often means too mentally defective to learn the language in the usual time. Many a mentally defective child is excused and claimed to be normal on the plea that he does not understand the language, the teacher forgetting that the normal child of almost any foreign nation learns our language in an amazingly short time—barring the children that hear no English except in school.

There are 1,464 children in the C classes, those who do not speak English. It is more than probable that a high percentage of these—at least much higher than that we give for the general group—are feeble-minded, and must have special instruction in the language because they are too defective to readily pick it up. In other words, this is only an illustration of what we find regularly, that a physical condition often obscures the mental defect. A child may be feeble-minded, but if he is also a foreigner we ascribe his defect to "language"; just as in adult life a man may be feeble-minded, and as a result of that a drunkard, the alcoholism always obscuring the feeble-mindedness. People say, "Yes, he is weak, but he would be all right if he did not drink."

We have another illustration, although of no great significance to our numbers: There are in the city 490 crippled children in special schools. Undoubtedly a high percentage of these are mentally defective. Also many feeble-minded children who are crippled, blind, or deaf, have

been shut out of the schools. The actual number of all of these should be ascertained. It is only logical to conclude that of the mentally defective children a large percentage become crippled because of their lack of sufficient intelligence to avoid ordinary dangers. This, indeed, is one of the phrases used by Tredgold to define feeble-mindedness.

Next, it must be recognized that children who are thus found to be mentally defective can never earn a living except under the most favorable conditions, and such conditions certainly do not exist in our large cities, especially New York. Therefore, this army of 15,000 children is bound to be more or less a burden upon society.

Again, careful studies have shown that this condition of mental defect is hereditary in somewhere from 65 per cent. to 90 per cent. of the cases. The studies of the children at the Vineland Training School show 65 per cent. with marked feeble-minded ancestry. Tredgold of England and the Royal Commission accept from 80 per cent. to 90 per cent. as due to a "morbid heredity."

Applying this to our problem, then, we find that from 10,000 to 12,000 or 13,000 of these children will, when they grow up and marry, produce children defective like themselves. It has further been shown that they produce children in large numbers, increasing at twice the rate of the general population.

Again, we see the enormous size of the problem.

In view of these facts, what shall be done? Two solutions have been proposed for this problem. One is permanent segregation, so that they could never become parents; and the other is surgical sterilization. In the present condition of society neither of these solutions is applicable to any considerable proportion of these 15,000 children. They cannot be placed in institutions or in colonies, for the reason that their parents will not consent. They cannot be sterilized for the same reason. The great majority must live their lives in the environment in which they are born. A great majority of them will become parents, and the problem will become increasingly larger for us until such time as we are driven to take drastic measures of one form or another.

Meanwhile what can be done? First of all, a body of undisputed facts bearing on the problem should be collected. For example, I have asserted my belief that there are 15,000 mentally deficient children in the schools of New York. I have backed up that opinion by certain facts and arguments which make it imperative that the truth be ascertained. It is not enough to rest upon the opinion of someone else that such a number is preposterous. The true number may be less; it may be more. But something approaching the exact figure should be obtained.

Actual data should be accumulated as to what becomes of these children after they have left the ungraded classes, of the children in E classes, the C classes, and all others who show in their school work

that they are not perfectly normal, to the end that we may know what effect our methods are having upon these children, and to what extent we have wisely judged them and treated them.

We need a great deal more knowledge concerning the effect of the methods of sterilization, so that we may speak with assurance when it comes to the question, "Shall this person be sterilized?" and so that we can predict exactly what will be the consequences.

With a body of knowledge behind us, it will not be difficult to carry on a campaign of education looking toward the solution of the problem—not only in securing efficient and far-reaching laws for the sterilization of the unfit in a much more helpful way than any of the laws now in force, but also in showing parents that segregation in institutions is the wisest thing that can be done for their children, unless they are willing to have them sterilized, if that shall have proved a wise procedure.

In our attempt to estimate the probable size of this problem, we should not forget that the figures so far produced relate to children actually in the public schools, and that, besides these, there are many more children who are deficient. For example, there are large numbers of children not in the public schools. The investigator has been told frequently that, when children do not get along in the public schools, they are frequently taken out and sent to other schools. If this is true, it may be that the percentage of defective children in these other schools would be considerably larger than that which we have assumed for the public schools; at any rate, as high a percentage would hold. In the nature of the case, one would expect that the percentage of defectives in these schools would be high. This has been corroborated by observation in at least one such school.

Having accumulated the facts, and having sufficient knowledge of the problem, we should next work toward institutions or colonies for the segregation of these people. The question as to whether parents will allow their children to go to an institution is largely influenced by at least two factors: first, the distance of that institution from the child's home, involving the possibility of occasional visits; and, secondly, the character of the institution where the child is to be placed. The City of New York has an institution for the feeble-minded at Randall's Island. As to the character of that institution, I am not expressing an opinion; but, whatever be its real character and worth, it is unfortunately true that in the popular mind its reputation is not good. Whether their opinions are well founded or not, the fact remains that parents are opposed to sending their children to Randall's Island. They tell the most disquieting stories of the treatment that their children have received. This same attitude of the parents was also found by Dr. Moore in her study of the problem, as published by the Public Education Association.

One of the two possible solutions of the problem, What shall be done with the mentally defective child in New York? is segregation and colonization. It is, therefore, most unfortunate that the one in-



stitution which the city supports for that purpose should have such a reputation as to make this solution difficult and often impossible. It is possible to have colonies and institutions so attractive that parents are eager to have their children placed there. This has been demonstrated in many places the country over.<sup>1</sup> Until we come to the point where we decide to take these children forcibly away from their parents, whether they are willing or not, everything depends upon winning the parents' consent; and this can be done if the institutions are conducted in the right way, and if entrance to them has been made simple and pleasant. Children may be made happy and as useful as their limitations will permit. Wherever the children become trainable to such an extent that they are earning something, it might even pay the State or the city to make some return to the parents, if their plea should be that they want to take the children home because of what they can earn for them. It would be cheaper for society to pay the parents a certain amount for the work of the child, and have absolute control of the child, than to send it home, and out into the world where later it would produce more children of the same kind, or become a criminal.

Finally, all who cannot be thus taken care of, in such a way as to provide against the reproduction of the same type of children, must be made as good citizens as possible.

How can we make them as good citizens as possible?

It is well known that a happy person is a better citizen than an unhappy one. It is, therefore, perfectly logical to maintain that, if we can make these children happy, we are taking the first step toward securing the best citizenship that we can get from them.

Secondly, people are more likely to be happy when they have some occupation, something that they can do with some satisfaction to themselves. Therefore, if we can train these children so that they have some little skill, even though in only one activity, and not sufficient to enable them to earn a living, they have an occupation; and this will make them happy, and tend to keep them out of mischief and make them as little a burden upon society as possible. It would appear, therefore, that it is necessary for society to see to it that these defective children are trained to be happy and as useful as they can be made.

The next question is, Who shall do it, and how shall it be done? This question is fundamental, and must be satisfactorily answered.

It seems clear that these children are not proper candidates for such education as the public school is now able to give, and, to that extent, do not belong in the system. But the fact still remains that they must be cared for. To the extent that society understands the situation, it will certainly demand that these children be cared for and trained. Whether society will place the burden upon the public school system, or whether it will establish another agency for doing this work, remains to be seen. If the latter plan is adopted, then, of course, the public school

<sup>1</sup> E. g., Waverley, Mass.; Faribault, Minn.; Polk, Pa.

system is relieved, and the next step would be the establishment of some tribunal which would decide all doubtful cases. But, if the public continues to say that the educational system is nearer to this problem than any organization that can be brought into use, it does not necessarily follow that the educational system, as it now is, is prepared for these children, or must take them in and treat them as it does other children. But rather it follows that the educational department must enlarge its scope and make special provision for such children. The next question is, What must the educational department do in order to provide for these children?

The attempt to make citizens of this class of children by the same method that is used with normal children has been tried, and has failed. We have always had such children in our schools, and they have always failed to be benefited by the regular school treatment. Under the compulsory education law, we are getting more of them in our schools, and have finally been driven to placing them in these ungraded classes. Having learned something of the lesson that experience has taught us, we have consented to devote nearly half of their time to manual training, and we have seen beneficial results.

The next step is to recognize what has been accepted by nearly all of the people who have studied this problem carefully, and have done most toward its solution, viz.: that book work is practically useless for these children, and that our work with them, instead of being half manual, should be *all* manual and vocational. Careful psychological studies of the type of mind possessed by these defectives show that they are incapable of dealing with abstractions, and that *everything is abstract with them that does not concern those things that enter into their daily life and experience.*

They should, therefore, be placed under a distinct system which is not bound by the rules and regulations of the regular schools. The system should be so arranged that there would be a large amount of freedom and opportunity to train each child in the way in which he is found to be best capable of development. There need be no deep gulf between this system and the other. It should always be easy for a child who has by some misunderstanding been placed in this group, but who shows ability, to get back into the normal grade at any time; just as, at the other end of the scale, it should be easy to send all children, whose parents will permit it, to the colonies or institutions where they are made happy and useful for life.

Such a plan might well occupy the entire time and attention of a superintendent of schools for mental defectives; and, recognizing as it does the fundamental facts and conditions of the problem, it might at the same time embody the most important suggestions that we have recorded as coming from the experience of principals and teachers.

Separate schools would thus be established for these children, each one under a principal who would be an expert in this work, who could

devote his entire time to the problem, and give the adequate supervision which is so seriously needed. In such schools grading would be possible. The lowest grade cases, for whom little can be done, could be put in one group, and the teacher in charge would only be required to keep them happy, train them in simple habits, and do for them what their condition allows. Those who are a little higher could be put together in another class, and so on up to the highest class, which might well be a class of border-line cases. Of these, some might get back into the grades. The question of supervision would thus be largely solved; and the solution of the question of trained teachers would be greatly helped, since it would be possible to obtain at once persons as principals of these schools who are efficient and well trained, and it would also be possible to obtain a few teachers who are equally well trained and capable of leading the work. The other teachers, by observation of their more experienced associates, would learn a large part of the methods that they need. Every effort should be made, however, to secure opportunities for these teachers to study large groups of defective children as they are found in institutions. The new Letchworth Village should become a training school for these teachers, and other institutions that may be established in the vicinity of New York should be planned with the same thing in view. These teachers could also be paid an ample salary, enough at the start to induce them to take up this work, with an ample increase to those who prove effective, who show by their zeal, enthusiasm, and willingness to study the problem, that they are of the right kind.

At least two states (New Jersey and Michigan) are proposing a scale such as the following: The teacher of the ungraded class, who comes properly qualified, to receive a bonus of \$100 the first year, \$200 the second, \$300 the third, and so on, until it becomes \$500—this in addition to the regular salary of the grade teacher. To those unfamiliar with this work this may seem a large bonus. Few people realize the special ability, skill, and training required. These teachers have to be specialists, and, therefore, experts. Again, few realize the nerve-racking work, the discouragements, difficulties, and even dangers these teachers have to face. An adequate salary is the least we can do for them.

The schools established on this independent and free basis would also be able to control the question of material and provide what was needed for their work.

Ultimately these schools should develop into home schools, keeping the children as many hours as possible, and many of them even over night. And, finally, they should develop into city institutions for defectives, thus largely solving the problem.

At this point the question of expense is forced upon us. There is only one answer to the question of cost. *Whatever it costs, it must be done.* This problem is as fundamental to our social well-being as our courts, our sewerage system, or quarantine. In addition to what it will do for these children themselves and for society as a whole, we must

not forget the value of the work to the children in the normal grades. The regular classes are relieved of the burden of these defective children, the teachers are able to do vastly better work, and the children receive the benefit. But more than that. When we consider this problem, as we have done, from the social standpoint, and realize what it may mean to have these children properly cared for and trained, we see that we can ill afford not to expend large sums for the sake of saving these children from becoming public nuisances. Therefore, the question of expense must not enter into the consideration. We have these children. They can only be dealt with in one way, and we must do it, whatever the expense. We must appropriate large sums of money to care for these children, in order to save larger expense in caring for them later in almshouses and prisons, to say nothing of their numerous progeny.

To return to the schools. Not only could they devote themselves, so far as necessary, to manual work and vocational training, but this work could be so systematized as to have high educational value—a thing which the present manual work in the ungraded classes, as a rule, does not have, because of lack of grading and systematic development.

I shall not in this report work out the details of the system. It can be seen in its perfection at the Institution for Feeble-minded in Waverley, Mass., where children of lower grade than any usually found in these ungraded classes are trained to wonderful skill in doing things, and toward earning a living. There is no reason whatever why these New York City children could not be trained in the same way. This tremendous social problem would then be largely solved, except in so far as it involves heredity.

There are, it is true, some difficulties to overcome in the establishment of special schools, in place of the present ungraded classes. But the advantages are so great that methods of overcoming the difficulties should be found. In many places, where the regular schools are now so close together, it would be easy to fill a new school with these mentally defective pupils, without involving any long journeys for any of them. In other places that would be more difficult, and it might involve the transportation of some of them, as the cripples are now conveyed. This would of itself be quite a problem, because the defective children are more difficult to handle en route than are the cripples. Nevertheless, that would not be an insurmountable difficulty.

It is sometimes thought that parents would have more serious objections to a *school* than they do to the ungraded class. But experience in other cities has not verified this belief. Indeed, parents can easily be convinced of the many advantages of separate schools. These advantages have been pointed out by various principals. In such schools these children are away from the normal children and escape the bullying and teasing to which they are liable. To obviate this under the present régime the ungraded classes are now called and dismissed at

different times from the regular school. If the term "ungraded class" has come to have such a significance that parents or children are apt to regard it as synonymous with "crazy class" or something equally unpleasant, an entirely different name could be chosen. Moreover, the character of the school, because of the work and the trained principals and teachers, would soon free it from any odium that might otherwise attach to it. The success that many of these children would have in going to work after they left school would soon make it appeal to the parents.

In regard to working papers—it probably would not be difficult to have the law so modified that children who are recognized as belonging to this type should have (qualified) working papers, which would enable them to take such place as they could without being required to come up to the standard now required of normal children.

The question of what children should be sent to these schools is one of the most difficult of all. The present method, as has been pointed out by the inspector of ungraded classes and the superintendents of schools, is entirely inadequate. One examiner cannot attend to so much work. There should be several assistants; and, when the full size of the problem is recognized, it will be understood that there should be a considerable number of them. Indeed, it is entirely probable that, under ideal conditions, we should examine by the Binet scale, or any that may prove more efficient, every child that enters school, and, from time to time, all children who are not doing their regular work *understandingly*.

Still another thing that will need to be seriously studied, and which is now ignored, is the fact that many children do not show their defects until they are about nine or ten years old. The consequence of this is that the children often get into the grammar school before showing any serious defect. Then they begin to slow down in their development, and, before they get through the grammar school, they are decidedly deficient. Under the present system, these children are often not discovered at all, because some principals understand that no child is to be recommended for the ungraded class who has progressed beyond the primary school. The result is, there are many children in the 7th and 8th grades who are repeaters for two or three years, and are really mentally defective (although they would generally be of high grade—*morons*).

#### IV—Recommendations

In view of the importance of this problem and the future welfare of our people, I should recommend a radical enlargement and extension of the work of the ungraded classes:

First.—By the appointment of a Superintendent of Schools and Classes for Defectives.

Second.—By greatly increasing the appropriations for the work in

accordance with the needs, as determined by those in charge of the problem.

Third.—By the appointment of at least four associate inspectors of ungraded classes.

Fourth.—By the appointment at once of five more examiners (psychologists and physicians), whose duty it should be to determine what children shall be placed in these classes. Additional examiners should be appointed as needed. All repeaters and over-age pupils, together with all pupils now in any of the special classes C, D, E, and ungraded, should be tested by the Binet-Simon scale in the hands of experts trained in its use (as is done in Rochester, N. Y., Cleveland, O., and other places, with signal benefit to the system).

Fifth.—By the establishment as fast as possible of special schools to take as many as possible of these ungraded classes out of the regular schools, to the end that the children may be more adequately directed, supervised, graded, and given appropriate manual training and vocational work.

Sixth.—By the appointment of a number of special assistants—six or eight—whose business it should be to follow up the history of these defective children after they have passed through the schools. After a few years such histories would throw much-needed light on the value of the methods used; and they would point the way to further steps toward protecting society from the future incubus of these irresponsible persons.

Seventh.—It is certainly the duty of the Department of Education to see that the present method of administering supplies is revised, so that the ungraded classes shall not be hampered in their work by the difficulty of obtaining the material and equipment which they need. (Many of the teachers at present spend practically all of their bonus in purchasing supplies which should be furnished by the city.)

Eighth.—A substantial increase in the bonus paid to teachers of these classes (or schools) should be provided; this bonus should be graded, increasing year by year up to a certain limit; teachers should qualify for this increase annually, and only those who show proficiency and growth should be eligible to the advance.

Ninth.—Suitable steps should be taken as rapidly as possible to provide training classes for teachers of defectives. In addition to the class work and theoretical instruction, teachers in training should have access to model schools. These could perhaps be secured at Letchworth Village, or other institutions for the feeble-minded. It is important that such model schools for the teachers in training should be institutional schools. Only in such schools do the teachers see that the children are distinctly feeble-minded. If they see only the children in the ungraded classes or special schools, they tend more or less to retain the impression that the children are really normal, or will yet prove normal; and this impression (or conviction) is a serious handicap to their work.

Tenth.—The child labor law should be so modified as not to apply in

its present form to children who have been declared mentally defective. These children should be allowed to go to work as soon as those in charge of the schools or classes conclude that it is more profitable for these children to be under the direction of their parents or in regular work than in the schools. However, this should apply to such cases only as cannot be placed in an institution or colony.

Eleventh.—That appropriate manual training be made the principal thing in all of these classes; such reading, writing, and numbers as are taught should be taught, so far as possible, in connection with the hand work.

### Conclusion

I find after careful investigation of practically all of the ungraded classes in New York City that, while a great work is being done and a work which cannot and must not be stopped because of its value to the children who are in the regular grades, yet, for lack of funds, for lack of adequate help to carry out the plan, the work is very far from being what it should be. Many children are not getting what they might get because of lack of equipment and material in the classroom. Many children are not in the classes who ought to be in them, because they cannot be passed upon and transferred to these classes, owing to the lack of help to make the examination. Many defective children are still in the grades unrecognized. The entire treatment of defective children is very inadequate, owing to the failure to recognize the high grade type of mental defective. Much time is wasted in teaching children reading, writing, and counting who will never be able to make any use of them. The whole movement is handicapped for lack of trained teachers; and this is largely because of lack of sufficient financial inducement to good teachers to go into the work.

In this report I have only touched the most important aspects of the problem. It is useless to go into details until these are considered. In my recommendations I have mentioned only the most important items. Many minor ones will follow inevitably if these larger and most important matters receive due consideration and lead to proper action.

Pending the adoption of the larger and better system recommended herein, it is possible to make many improvements in the present classes in accordance with the suggestions given above, and this should be done at once.





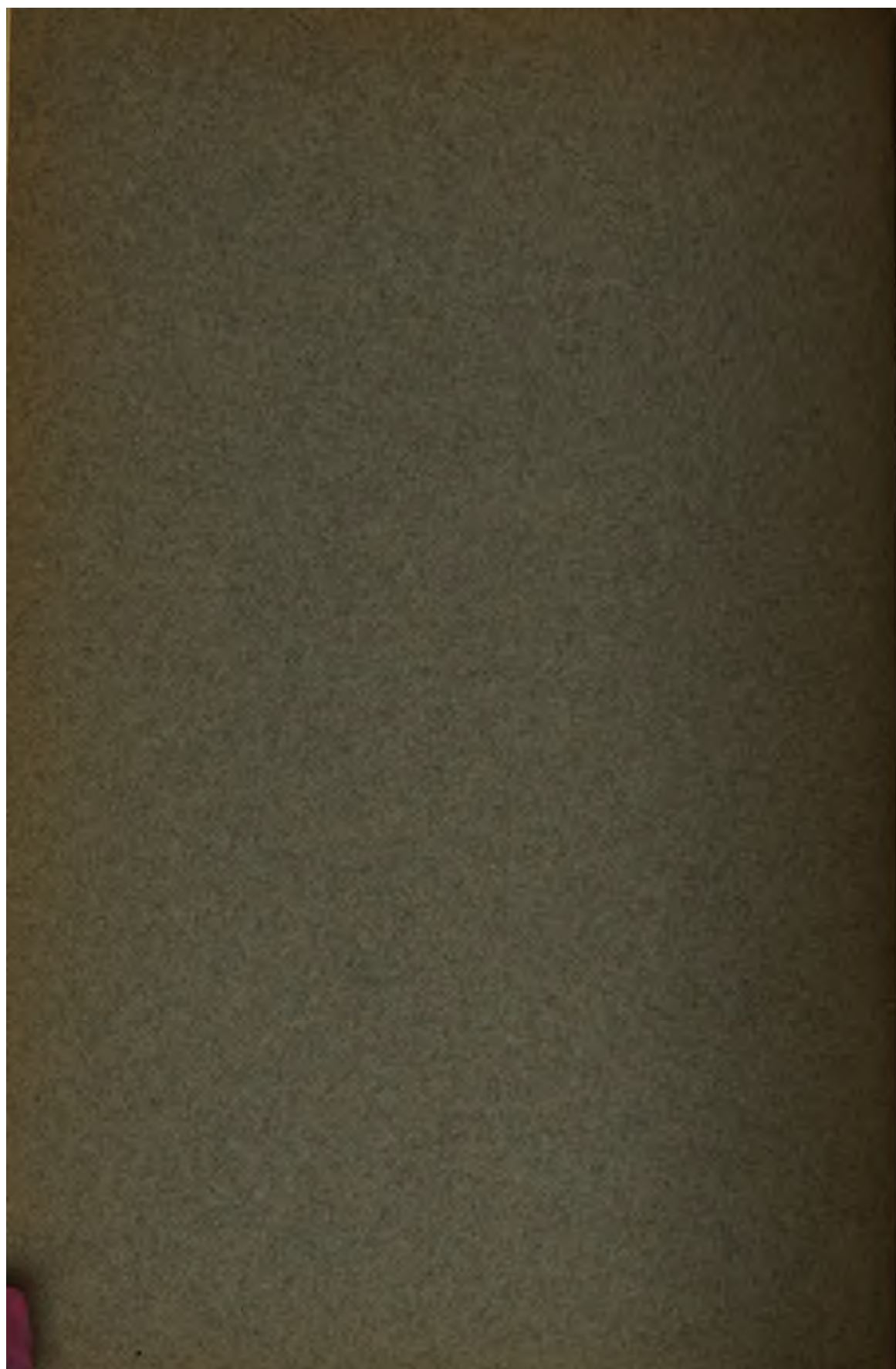












# INTERIM REPORT

## Committee on School Inquiry Board of Estimate and Apportionment

### *Embracing*

1. Letter of Transmittal
2. Estimating for Budget Purposes the Number of Teachers Needed in the Elementary Schools

By DR. FRANK P. BACHMAN

### *Committee on School Inquiry*

JOHN PURROY MITCHEL

*President of the Board of Aldermen*

WILLIAM A. PRENDERGAST

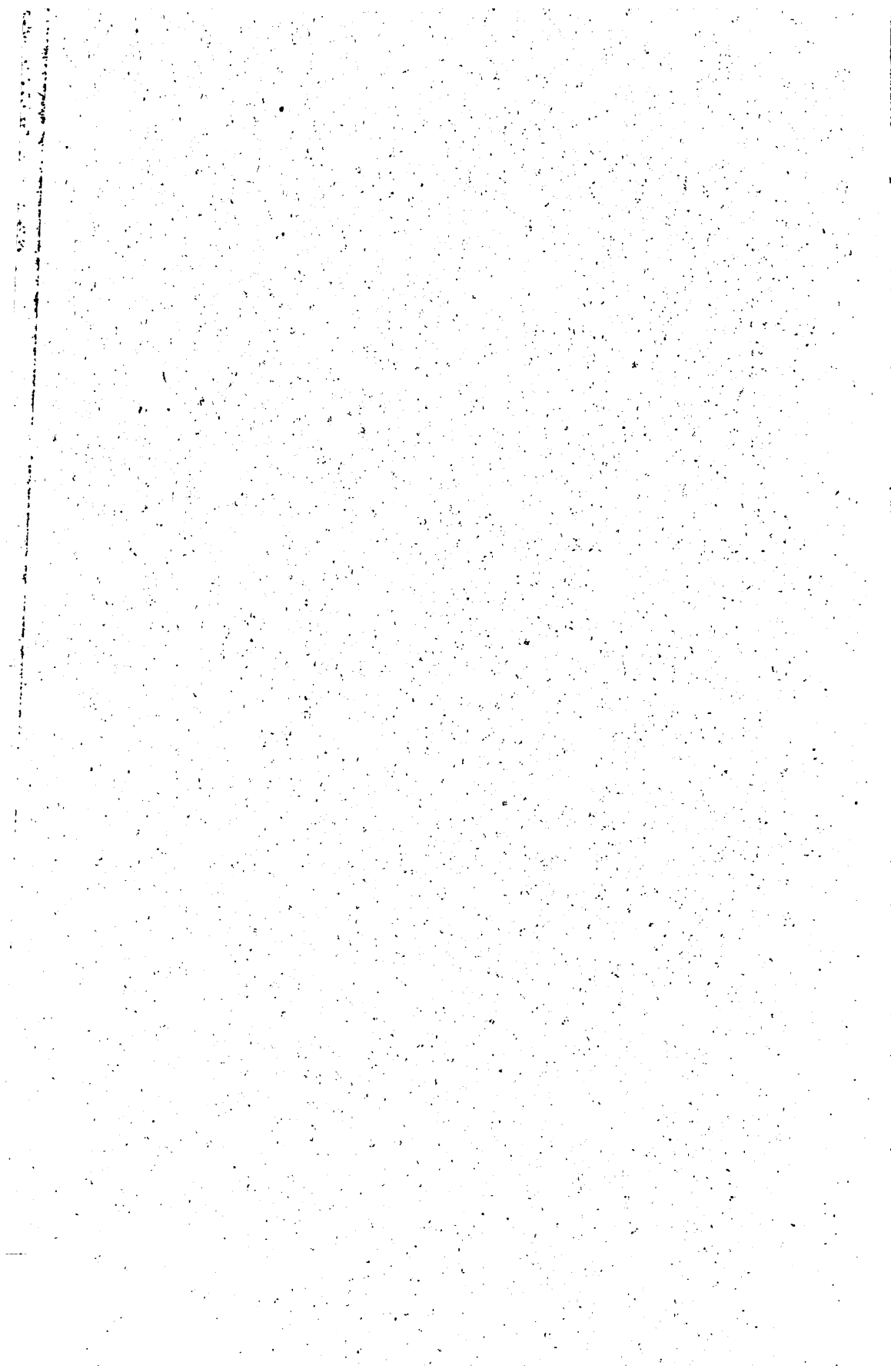
*Comptroller*

CYRUS C. MILLER

*President of the Borough of the Bronx*

CITY OF NEW YORK

1911-1912





MARCH 26, 1913.

*To the Honorable, The Board of Estimate and Apportionment:*

GENTLEMEN:—The Committee on School Inquiry herewith submits to your Board a report originally prepared as a part of the general report upon the educational aspects of the school inquiry, being a monograph by Dr. Frank P. Bachman, formerly Assistant Superintendent of Schools, Cleveland, Ohio, upon "Estimating for Budget Purposes the Number of Teachers Needed in the Elementary Schools."

After the monograph was set up in galley proof, extended revision was found necessary, which could not be made in time for its inclusion by Prof. Paul H. Hanus in "The Report as a Whole," prepared by him. As it forms a part of the report originally prepared by Prof. Hanus, it is submitted at this time.

Respectfully submitted,

JOHN PURROY MITCHEL,  
*President, Board of Aldermen.*

WM. A. PRENDERGAST,  
*Comptroller.*

CYRUS C. MILLER,  
*President, Borough of The Bronx.*  
Committee on School Inquiry.



For Part II

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Subdivision I

Elementary schools

Section F. - Problems in Elementary School

Organization and Administration

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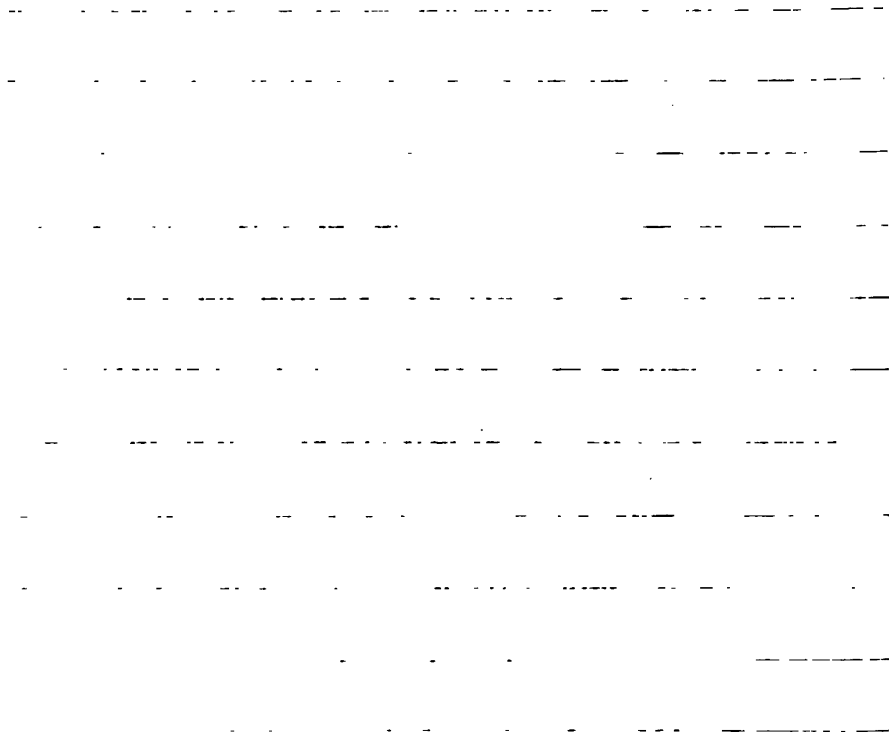
Frank P. Bachman

(Called: Supplementary report.)

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REPORT ON  
EDUCATIONAL ASPECTS OF THE  
PUBLIC SCHOOL SYSTEM

OF THE CITY OF NEW YORK

TO THE

COMMITTEE ON SCHOOL INQUIRY  
OF THE BOARD OF ESTIMATE  
AND APPORTIONMENT

PART II

*Subdivision I*

*Elementary Schools*

SECTION F.—PROBLEMS IN ELEMENTARY SCHOOL ORGANIZATION  
AND ADMINISTRATION

Estimating for Budget Purposes the Number of Teachers  
Needed in the Elementary Schools

BY

FRANK P. BACHMAN, PH.D.

Formerly Assistant Superintendent of Schools, Cleveland, Ohio

CITY OF NEW YORK  
1911-1912



*Prof. H. C. Hoopes.*

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## ESTIMATING FOR BUDGET PURPOSES THE NUMBER OF TEACHERS NEEDED IN THE ELEMENTARY SCHOOLS

### The Report in Brief.

In the budget estimate of the Board of Education the largest single item is invariably the request for funds for teachers in the day elementary schools. The total budget estimate of the Board of Education for 1913 was \$38,316,650.58. Of this sum \$23,297,591.23, or 60 per cent. of the total, was for teachers in the day elementary schools. It is over the allowance of this enormous sum for the day elementary schools that the principal financial differences and misunderstandings between the Board of Estimate and Apportionment and the Board of Education arise. On the one hand, the Board of Education affirms that the entire amount requested is imperatively needed, and, on the other hand, the Board of Estimate and Apportionment affirms that the facts presented do not prove the need of the entire amount requested.

The margin in dispute is shown by the difference between the amount requested by the Board of Education and the amount allowed by the Board of Estimate and Apportionment.

### Difference Between the Amount Requested and Amount Allowed for Teachers in the Day Elementary Schools from 1909 to 1913.

Year	Amount Requested	Amount Allowed	Difference Between Amount Requested and the Amount Allowed
1909.....	\$17,925,453.98 <sup>1</sup>	\$17,287,563.11 <sup>1</sup>	\$637,890.87
1910.....	18,513,270.28 <sup>1</sup>	18,078,072.54	435,197.74
1911.....	19,112,709.72 <sup>1</sup>	18,615,594.12	497,115.60
1912.....	19,826,549.06	18,997,374.45	829,174.61
1913.....	23,297,591.23	22,535,612.64	761,978.59

<sup>1</sup> Includes substitutes and per diem teachers for all schools.

The day elementary school serves all the children of the city, and for probably nine out of every ten children it is the only school they ever attend. The day elementary school, the school of the people, should be liberally supported. Can such large sums as the foregoing be denied the Board of Education year after year without permanent injury to the elementary schools? Or are the estimates of the Board of Education inflated year after year and the allowances of the Board of Esti-

mate and Apportionment adequate for the proper support of the day elementary schools?

Whatever the answer to these questions, this much is clear: First, it is incumbent on the Board of Education so to present the facts to the Board of Estimate and Apportionment on the needs of the schools that if funds are allowed for a single teacher less than the number requested, just so much care and attention is denied a given group of children. Second, it is incumbent on the Board of Estimate and Apportionment, in view of other municipal activities and of the interests of the taxpayer, to refuse to vote public money on sentimental grounds; hence it is incumbent on the Board of Estimate and Apportionment to refuse to vote money for the day elementary schools until the Board of Education presents facts sufficient to demonstrate clearly what the needs of these schools are. Such facts have not been presented to the Board of Estimate and Apportionment in the past.

In preparing the budget estimate for 1911, the estimated register for which provisions were requested was based on an increase in register of December over the preceding May for 1902-1909, inclusive. When the needs of the school were thus estimated, requests were made to care for an increase in register for the Fall Term of 1910 of 28,000. The actual average annual increase in the register of December over December for the years 1902-1909, inclusive, was 21,707. It is, therefore, obvious that the estimated increase in register of 28,000 for which budget provisions were requested would have provided for at least 6,000 more pupils than there were reasons to expect there would be in the schools in December. It became clear at the hearings before the Budget Committee of the Board of Estimate and Apportionment in October, 1910, that this method of estimating the increase in register gave an inflated estimate of the needs of the day elementary schools, and as a result this method has not been used since.

In the preparation of the budget estimate for 1912 the individual school was made the unit in estimating the number of teachers for which provisions were requested. This method also gave an inflated estimate of the number of teachers needed, because:

1. The data on which the estimates of the principals were based were inadequate.
2. The estimated increase in register, when compared with the actual increases of previous years, was excessive.
3. The losses of pupils in advancing from grade to grade were underestimated, and
4. A study of the data on file at the Board of Education shows that the estimated register of December, 1912, of the individual schools when combined was at least 3,500 higher, and the estimated register of December, 1913, was at least 7,000 higher than the highest estimate that would probably have been made, had the foregoing data been taken into account.

The method of estimating the number of teachers needed in the day elementary schools was again changed in the preparation of the budget estimate for 1913. The district, of which there are forty-six in the system, was employed as the unit in making the estimate. This method is defective and should not again be used, because:

1. The size of class varies with the grade—from sixteen in ungraded classes to forty-four in the lower grades. A tabulation of the total register of a given month by districts for a series of past years supplies no basis of estimating the register of the different grades and kinds of special classes, and without the estimated register of each of the several grades, it is impossible to determine the number of classes needed.

2. The data presented supply no basis of determining whether or not the number of classes in a given grade and given school were too many or too few; hence supply no basis of determining the number of classes there should have been organized to care for a given register and that could have been accommodated in the given school.

3. Data presented for the month of December only, supply no basis of determining the needs of the schools for the other months of the year; hence of estimating the number of teachers needed month by month and of determining the length of time for which new teachers should be employed; and

4. It is impossible from the data presented to determine the correctness of the several estimated needs, and hence of the several budgetary requests based thereon.

So important is it, on the one hand, that the day elementary school be adequately supported and so necessary is it on the other hand that the interests of other municipal activities and of the taxpayers be conserved that both the Board of Estimate and Apportionment and the Board of Education are in accord that a plan of estimating the number of teachers needed in the day elementary school be developed and agreed on.

The principal points in the plan proposed in this report are as follows:

**A. Register the Basis of Estimating the Needs of the Elementary Schools.**

1. Average daily attendance should not be made the basis of estimating the needs of the day elementary school because
  - in bad weather,
  - on holy days, and
  - on days when there are civic celebrations, hundreds of thousands of children are temporarily out of school. Hence, to make average daily attendance the basis would be to underestimate the number of teachers needed.

2. The register at the end of the month, as now reported, should not be made the basis of estimating the needs of the day elementary schools, because there are now included in this register children who have not been in school an entire day during the given month, and also children who have not been in school an entire day during the given term. Hence, to make such a register the basis is to overestimate the needs of the schools.

3. The register to be used as the basis of estimating the needs of the day elementary schools should exclude all transfers to other rooms or buildings and should include only pupils who have been in school at least one entire day during the given month.

#### **B. The Entire System the Unit in Estimating the Register.**

1. The individual school should not be made the basis of estimating the register for which budget provisions are requested, because:

(a) In the case of the majority of the elementary schools it is impossible to estimate with exactness from two to eighteen months in advance:

- (1) The total register of the individual school.
- (2) The distribution of this estimated total register among the several grades.
- (3) In what grades there will be such increases or decreases as to make necessary an increase or a decrease in the number of classes. Hence, it is impossible to forecast with exactness the needs of the individual school.

(b) It is not necessary for budget purposes to know in advance the needs, hence the number of teachers that will be required in a particular school.

2. The entire system should be made the unit in estimating the total register for which provisions are requested, because:

(a) Only those factors affecting the increases in the register of the entire system have to be taken into account in estimating the total register for the system as a whole, whereas in attempting to estimate the register of a particular school or a particular district those factors affecting the increase in the register of the individual school or district have to be considered also. Hence, it is a simpler task to estimate the register of the entire system than the register of an individual school.

(b) The register of the entire system as a whole can be estimated with greater relative exactness than the register of an individual school or district.

(c) The only register needed for budget purposes is the total estimated register of the system as a whole; it is therefore needless to

make 500 or even 46 separate and less exact estimates, each to be checked and verified.

**C. The Basis of Estimating the Total Register is the Average Increase for a Series of Years in Register of the Entire System.**

1. The total register of the system as a whole changes from year to year and from month to month, and the increases year over year and from month to month differ materially.

2. To estimate in July, 1912, the register, for example, of December, 1913, it is necessary to estimate what the increase in the register of December, 1913, over December, 1912, will be, and add this estimated increase to the register of December, 1912; the sum will be the estimated register of December, 1913.

3. In a series of annual increases of December over December for a number of years, for example, of December, 1903 over 1902, 1904 over 1903, etc., the nearest constant is the arithmetic average of the different annual increases. The very safest estimate, therefore, of the increase in register of December over December is the arithmetic average of the annual increases of December over December for a considerable number of years.

4. In making a given estimate, whether it is preferable to use as the basis of the estimate the average annual increase for five years, or four years, or three years, or two years, or the increase for one year, can only be determined in view of conditions at the time the given estimate is made.

5. Estimated registers based on the actual average annual increase for a series of years ranging from one to five are exact on the average within less than three-quarters of one per cent.

6. Since the total register of the elementary schools changes from month to month, it is necessary in order to determine their needs to estimate the total register of the system as a whole for each month of the school year.

**D. The Basis of Distributing the Total Estimated Register Among the Different Grades Is the Average Annual Increase or Decrease for a Series of Years in the Register of Each Grade.**

1. The total register of the system as a whole for a given month of a particular year is the sum total of the registers in all elementary schools of the different grades. The increase year over year in the total register is, therefore, the net sum of the increases or decreases in the register of the different grades.

2. The basis of estimating the distribution of a given total estimated register, that is, of estimating the register of each of the grades, is consequently the average annual increase or decrease in the register

of the respective grades for the same series of years as was used in estimating the total register in question. If, for example, the average increase in the register of the entire system for three years was employed as the basis of estimating the total register, then the average annual increase or decrease for three years in the register of a particular grade is to be used as the basis of estimating the register of the given grade or kind of special class.

3. The register of each grade and kind of special class for each month of the school year must be estimated or the estimated total register of the entire system for each month of the school year must be distributed among the several grades, because:

- (a) The register of the several grades changes from month to month.
- (b) The number of teachers needed in a given grade to instruct a given number of pupils changes from month to month.
- (c) The salaries of teachers differ with the grade in which they teach. Hence, it is necessary to know the number of teachers needed in each grade and kind of special class in each month of the school year.

**E. The Individual School is the Unit in Determining the Number of Pupils for Whom One Teacher Should Be Provided.**

1. The size of class, hence the number of pupils instructed per teacher, is affected by:

- (a) The number of pupils that happens to be in the grade.
- (b) The differences in the size of classrooms.
- (c) The differences in the size of elementary schools.
- (d) The presence of part-time classes.
- (e) Opinions of principals on the proper size of classes, and
- (f) The budget allowance.

Therefore, in making a budgetary estimate for the elementary schools, neither the total estimated register for the system as a whole, nor the estimated register of a given grade can be divided by a theoretical size of class to find the number of teachers needed.

2. To determine the number of pupils one teacher can instruct, it is necessary to study by months and by grades the number and the size of the classes in each elementary school, to the end that the number of teachers actually needed and that could be accommodated under the given conditions may be known.

3. By combining by months the register of each grade and the number of teachers in service and that should have been in service, it is possible by division to determine by months and for each grade the number of pupils for whom one teacher should be provided.

- F. With the estimated register by months and by grades, and with definite knowledge by months and by grades of the number of pupils one teacher can instruct in hand, it is possible by division to determine the total number of teachers of each kind needed.**

There is no practical reason why the proposed plan should not be used in preparing the budget estimate of 1914. To collect by months and grades the data of past years on register and number of classes involved in carrying the proposed plan into effect would probably require the time of three competent clerks for a period of five months. To collect hereafter currently the data called for on register, number and size of classes, and on the number of classes actually needed,—data equally essential to the efficient administration and organization of the schools, would probably require the continuous employment of two competent clerks.

Should the foregoing plan be adopted and used in the preparation of the budget of 1914, it will be possible to *verify* and *check* the following facts, which will be at hand by grades, for each month of the budget year:

- (1) Estimated total register.
- (2) Number of pupils on the average one teacher can economically and efficiently instruct.
- (3) Estimated number of teachers needed.
- (4) Estimated period for which teachers should be employed.

### **The Report in Detail.**

#### **I. The Two-Fold Character of the Budget Request for Teachers in the Day Elementary Schools.**

In considering the budget requests of the Board of Education for the day elementary schools, it should be kept in mind that the requests for a given budget year, for example, 1913, are formulated not later than the preceding July. In consequence, these budget requests are subdivided into:

(a) Requests for salaries (for 1913 only) of persons in service as of a given date, for example, May 31, 1912, and for the salaries (for 1913 only) of persons to be appointed to fill vacancies existing as of May 31, 1912. The salaries of such persons for the remainder of 1912 have been provided in the budget of 1912, but these persons must be taken into account in considering the estimate of 1913, and salaries must be provided for such persons in the budget for 1913. These are the teachers who are engaged in instructing the pupils in school up to

the end of June and prior to the opening of the schools in September preceding the budget year in question.

(b) Requests for salaries (for 1913 only) of teachers to be appointed (1) between September 1st and December 31st, prior to the given budget year and (2) during the budget year.

(1) With the opening of the schools in September, there is an influx of new pupils (see Table IX, p. 42), and in consequence teachers in addition to those in service in the preceding May, and to those to be appointed to fill vacancies existing at that time must be appointed to care for this increase in register. The salaries of such teachers have been provided in the budget of the preceding year; hence salaries for such persons are requested for 1913 only. Nevertheless, such persons must be taken into account in considering the budget estimate for 1913, for these persons, together with those in service May 31 and to be appointed to fill vacancies existing at that date, constitute the payroll as of December 31, 1912; hence, if they are to be continued in service, salary provision must be made for them in the budget of 1913.

In most other departments of the city, the payroll as of December 31st is a fixed and known quantity; consequently, it is only necessary to consider the needs and probable changes in the payroll of the given department for the budget year in question. The payroll of the day elementary schools as of December 31st is not fixed; it is conditioned to a considerable extent by the number of pupils entering school between September and December. It would, of course, be possible for the Board of Education, in view of the allowances in the preceding budget, to fix the number of persons there will be on the payroll of the day elementary schools as of December 31st. In that case all consideration by the Board of Estimate and Apportionment of the increase in the register between September and December prior to the budget year in question and of the number of teachers needed might be eliminated, for it would only be necessary to provide salaries in the budget under consideration for those persons on the payroll as of December 31st and to fix on the number of persons to be appointed during the budget year. There are, however, advantages, as will be pointed out later, in taking into account the probable register of the schools in the Fall Term prior to the given budget year. To be sure, such a procedure seems to take the increase in register between September and December into account twice. For example, in the budget of 1912 provisions were made to care for the increase in register between September and December, 1912, and again in making up the budget for 1913 this increase was considered. It should, however, be noticed that the increase in register between September and December, 1912, is only taken into consideration in connection with the budget of 1913 in order to gain a more exact idea of the number of teachers needed to be appointed during this period, hence to acquire a more exact idea of the number of teachers for whom salaries should be provided



in the budget of 1913. The salaries for 1912 for all teachers appointed between September and December, 1912, were, of course, provided in the budget of 1912.

(2) There is no increase in the register of the day elementary schools between January and June. There is, however, a re-distribution of the register in February, owing to promotions at the end of January, and, while there is no increase in the total register between January and June, there are reasons to believe that there is considerable change in the register of particular grades. At all events, experience has shown that it is necessary to appoint additional teachers between January and June.<sup>1</sup> It is also necessary to appoint teachers between September and December to care for the increase in register of the Fall Term over the preceding Spring Term. In consequence, there must be included in the estimate, for example, for 1913, salaries for those teachers who are to be appointed during 1913 to care for the re-distribution and the increase in register.

The budget estimate of the Board of Education for the day elementary schools, in so far as it includes requests for the salaries of persons in service May 31st and for persons to be appointed to fill vacancies existing at that date, rests, in a sense, on facts. For the number of persons in service and their respective salaries, also the number of existing vacancies and the respective salaries attached thereto, are a matter of record. Reference to the records shows that the number of classes is invariably larger in January than in the preceding May; hence the number of teachers needed is larger. Conditions, however, might arise,—a decided decrease in the register, which would make unnecessary the employment in January of all the teachers in service in May, including those to be appointed to fill vacancies. Should such a condition arise, that part of the budget estimate including salaries for teachers in service in May and for those to be appointed to fill existing vacancies would, like other parts of the estimate, come to rest more directly on a forecast of the needs of the schools.

The number of persons to be appointed between September and December prior to the given budget year depends on the estimated increase in register between these months. The number of persons to be appointed during the given budget year depends on the estimated increase in register during the given year. This portion of the budget estimate of the Board of Education for the day elementary schools, resting as it does on forecasts made from two to eighteen months in advance of the register for which instruction should be provided, necessarily contains an element of uncertainty. The primary problem in making the estimate for the day elementary school is, therefore, one of reducing this element of uncertainty to a minimum.

<sup>1</sup> See Table IX, p. 42.

## II. Present Methods and Primary Defects in Present Method of Estimating Need of Teachers.

1. *Chief Points of Present Method.*—The chief points in the method employed by the Board of Education in estimating the need of teachers for the day elementary schools for 1913 may be summarized as follows:

(a) The total register as of December 31st for the years 1908-1911, inclusive, was tabulated by districts and summarized for the city as a whole.

(b) The total register as of December 31, 1912, and as of December 31, 1913, was estimated by districts and summarized for the city as a whole.

(c) The total number of classes of December 31st for the years 1908-1911, inclusive, was tabulated by districts and summarized for the city as a whole; also the number of classes as of May 31, 1908-1912, inclusive.

(d) The total number of classes as of December 31, 1912, and as of December 31, 1913, was estimated by districts and summarized for the city as a whole.

(e) The register and number of classes in the several grades and kinds of special classes as of May 31, 1912, were tabulated by districts and summarized for the city as a whole.

(f) The total estimated number of classes as of December 31, 1912, and as of December 31, 1913, was distributed for the city as a whole by grades and kinds of special classes.

(g) The increase in the estimated number of classes, hence in the estimated number of teachers to be appointed, as of December 31, 1912, over May 31, 1912, was determined for the city as a whole by grades and kinds of special classes; also the increase in the estimated number of classes, hence in the estimated number of teachers to be appointed as of December 31, 1913, over December 31, 1912.

(h) The number of classes as of May 31, 1912, having a register of fifty and of fifty-one or over was tabulated by districts and summarized for the city as a whole.

(i) Requests were made for salaries for a given number of principals, teachers, etc., for one year, for a given number for six months, and for a given number for five months.<sup>1</sup>

2. *Primary Defects of Present Method.*—The primary defects in the method employed by the Board of Education in estimating the need of teachers in the day elementary schools for 1913 are:

(a) An examination of the estimates for each of the several districts reveals no uniformity in the method employed in making the

<sup>1</sup> See Estimate for 1913 of the Board of Education, also blank: "Estimate of New Teachers Needed in Elementary Schools for Year 1913."

several estimates; no statement of the formulæ employed or of the specific information, if any used, accompanies the particular estimates; it is, in consequence, impossible to verify or check the several estimates.

(b) The elementary school is organized by grades and kinds of special classes, and the number of classes needed, hence the number of teachers required depends, not only on the total register, but also on the distribution of this register among the several grades and kinds of special classes (see Table XIV, p. 57, and Table XVI, p. 60). A tabulation, therefore, of the total register for a series of past years by districts for the elementary schools as a whole supplies no basis of estimating the distribution of the register for which budget provision should be made.

(c) From the data presented it is impossible to determine whether or not the number of classes reported was too many or too few and, if too few, how many too few, that is, it is impossible to determine in what schools it was impossible to consolidate two classes into one or in what schools it would have been practicable to have divided large classes, and it is also impossible to determine whether or not the additional classes could have been accommodated, even were teachers provided to divide large classes. In a word, the data supplied afford no adequate basis of control, that is, of determining the actual number of classes which should have been organized to care economically and efficiently for the given register, and which could have been accommodated under actual working conditions.

(d) The register and the number of classes in the several grades change from month to month, and there is a corresponding change in the number of teachers needed.<sup>1</sup> The data supplied afford no adequate basis of estimating, by months and by grades and kinds of special classes, the number of teachers required; therefore, supply no basis of judging of the correctness of the estimated number of teachers needed or of the correctness of the length of time for which the new teachers to be appointed during the budget year should be employed, and hence of the length of time for which salaries should be provided.

In order to make the constructive suggestions involved in correcting the foregoing defects, it is necessary to consider: the basis of estimating the need of teachers in the elementary schools; how to determine the number of pupils one teacher can instruct; and how to estimate the total register and to estimate its distribution among the several grades and kinds of special classes.

### **III. Attendance Versus Register as the Basis of Estimating Need of Teachers In Elementary Schools**

The estimated need of teachers in the day elementary schools for 1913, and the same is true for a number of past years, was based on an

<sup>1</sup> See Report on Teachers in Service by Months, on file at the office of the City Superintendent of Schools.

estimated register.<sup>1</sup> There are persons, however, high in financial and educational authority who believe that average daily attendance should be made the basis of determining budgetary requests.

I. AVERAGE DAILY ATTENDANCE AS THE BASIS.—(a) Average daily attendance represents, it is held, "solid service," actual service rendered, hence should be made the basis of estimating the needs of the elementary school. Average daily attendance does represent "solid service," but it represents the minimum amount of "solid service." To illustrate, the net enrollment<sup>2</sup> of all day elementary schools was, for the school years 1910-1911, 770,243, the average monthly register was 677,962, and the average daily attendance was 603,455.<sup>3</sup>

The difference between the net enrollment and the average daily attendance for the school years 1910-1911 was 166,788; the difference between the average monthly register and the average daily attendance was 74,507. Did the school render no service whatever to these 166,788 pupils or to these 74,507? The answer to this question is found in the actual work of principals and teachers. The principals of the city can demonstrate that a considerable part of their time is devoted to looking up and to devising means of getting back into school and of holding in school the 166,788 pupils who represent the difference between the net enrollment and the average daily attendance. Teachers are also in position to show that a considerable part of their energies are devoted to keeping children in school and to giving special aid to those irregular in attendance. These important services of principals and teachers are not directly reflected in average daily attendance in the so-called "solid service," but are not these among the most valuable services rendered?

(b) *Variations in Attendance.*—In considering average daily attendance as the proper basis of determining budgetary requests, it must be kept in mind that average daily attendance is very variable, being subject to a number of conditions, such as the weather, personal illness, epidemics, holidays, holy days, civic celebrations, etc. To illustrate: The register, number attending, and the per cent. of attendance on register in the 1A grade, P. S. No. 1, Manhattan, March 14, 15, and 18, 1912, were as follows:

Date	Register	Number Attending	Per Cent. of Attendance
March 14, Thursday.....	186	165	88.71
March 15, Friday.....	186	138	74.19
March 18, Monday.....	185	164	88.65

<sup>1</sup> See Estimates of the Board of Education for 1913, 1912, and 1911.

<sup>2</sup> The total number of different pupils on the register during the year.

<sup>3</sup> Annual Report of the City Superintendent of Schools for 1910-1911, p. 22.

The number of pupils absent on March 14th was twenty-one, March 15th forty-eight, and on March 18th twenty-one; similarly the per cent. of attendance was lower on March 15th than on March 14th by 14.52 per cent. and lower than on March 18th by 14.46 per cent. Why this difference in the number of pupils absent and per cent. of attendance? The explanation is found in the fact that on March 15, 1912, there occurred a severe rain storm.

The effect of the weather on attendance is, to be sure, greater in the lower grades than in the higher grades, but the effect is marked even when all grades are combined. The register in all grades, the number attending, and the per cent. of attendance on register in P. S. No. 1, Manhattan, March 14 and 15, 1912, were as follows:

Date	Register	Number Attending	Per Cent. of Attendance
March 14, Thursday.....	2,265	2,105	92.94
March 15, Friday.....	2,265	1,963	86.67

The number of pupils absent March 14th was 160 and on March 15th 302, a difference of 142; the per cent. of attendance March 14th was 92.94 per cent. and on March 15th 86.67 per cent., a difference of 6.27 per cent.

The effect on attendance of holy days is even greater than the effect of unfavorable weather. The register, the number attending, and the per cent. of attendance on register in P. S. No. 1, Manhattan, September 26, 27, and 30, 1911, were as follows:

Date	Register	Number Attending	Per Cent. of Attendance
September 26th, Thursday.....	2,342	1,335	57.00
September 27th, Friday.....	2,326	1,310	56.32
September 30th, Monday.....	2,322	2,121	91.34

There were absent from P. S. No. 1, Manhattan, on September 26th 1,007 pupils, on September 27th 1,016, and on September 30th 201 pupils; the per cent. of attendance was lower on September 26th than on September 30th by 34.34 per cent. and lower on September 27th than on September 30th by 35.02 per cent. All of which was due to the fact that September 26 and 27, 1912, were holy days.

The effects of the weather and of holy days on the attendance in P. S. No. 1, Manhattan, are illustrative of the effects of these two factors on the attendance in all the elementary schools of the city. In a word, thousands on thousands of children remain at home on stormy

days and tens on tens of thousands of children are out of school on holy days, to lessen materially the number of pupils in average daily attendance. The temporary absence of these children reduces the number of pupils in average daily attendance, but this temporary absence in no wise lessens the actual need of the schools. The actual need of the school is determined by the register, the number of pupils for whom the school is responsible, and not by the number of pupils that may happen to be present on this or that day.

Further, the average monthly register and the average daily attendance in all the day elementary schools of the city were for September, October, and November, 1910,<sup>1</sup> as follows:

Date	Average Monthly Register	Average Daily Attendance
September.....	625,252	592,152
October.....	648,117	521,739
November.....	647,526	590,220

It will be observed that the average monthly register for October is higher than the average monthly register for either September or for November. The average monthly register being higher, it would be natural to expect that the average daily attendance in October would be higher than in September or in November. There were, however, 70,413 fewer pupils on the average in daily attendance in October than in September, and 68,481 fewer pupils than in November. With a higher register in October than in either September or October, the question arises, Why was the average daily attendance lower? There may have been other contributing causes, but the primary cause was the Hudson-Fulton Celebration.

It is known that thousands on thousands of children were kept from school in order that they might enjoy these festivities. But can it be held merely because the average daily attendance was less in October than in September or November that the need of teachers was less? Obviously, the fact that children in great numbers were absent from school a given number of days in no wise affected the number of teachers needed to care for the pupils in school the remaining days of October. It should also be equally obvious that the average daily attendance in October supplies no basis whatever of determining what the needs of the schools were. Had the Hudson-Fulton Celebration been longer or shorter, had the celebration occurred on different days, had the weather been different, the effect on the average daily attendance might have been materially different; whereas the register for October, the number

<sup>1</sup> The data given in this report in all cases where the specific source is not given are taken from the official records of the Board of Education.

of pupils for whom the school was responsible, and hence the actual need of teachers in the schools, were probably affected very little, if at all, by these festivities.

The increase in the average daily attendance year over year (calendar year) and the increase of the register at the end of one year (calendar year) over another were for the years 1906-1911 as follows:

Year	Inc rease in Average Daily Attendance	Increase in Register	Per Cent. of Increase in Average Daily Attendance	Per Cent. of Increase in Register
1907 over 1906.....	20,763	21,836	4.21	3.82
1908 over 1907.....	26,719	14,810	5.20	2.49
1909 over 1908.....	10,382	19,130	1.92	3.14
1910 over 1909.....	8,285	16,734	1.50	2.66
1911 over 1910.....	24,621	11,913	4.40	1.85

It will be noticed from the foregoing figures that in but one of the five years in question, 1907 over 1906, does there appear to be any direct relation between the increase in average daily attendance and the increase in register. In the other four years of the five in question it would seem that attendance and register work by opposites. In 1909, for example, an increase in register of 19,130 resulted in an increase in average daily attendance of but 10,382, whereas in 1911 an increase in register of 11,913 was accompanied by an increase of 24,621 in average daily attendance. All of which tends to prove, as stated above, that average daily attendance is conditioned to a considerable extent by factors other than register and that average daily attendance is no index to the actual need of the school. The need for teachers in 1909 to care for an increase in register of 19,130 was not affected by the fact that the increase in average daily attendance was only 10,382; similarly, the need of teachers in 1911 to care for an increase in register of 11,913 was not affected by an increase of 24,621 in average daily attendance. The fact that in 1909 conditions were presumably unfavorable to regular attendance, and in 1911 presumably favorable, neither increased nor decreased in 1909 or in 1911 the number of pupils one teacher could instruct or the total number of teachers needed.

(c) *Attendance and Cost of Instruction.*—In addition to claiming that average daily attendance represents "solid service," hence should be made the basis of budgetary estimates, it is held that there is a direct relation in the day elementary schools between the average annual increase for a series of years in average daily attendance and the average annual increase for the same series of years in the cost of instruction. This being true, the preparation of budgetary estimates (General Fund) for the day elementary school is a simple matter, viz., estimate, for example, on the basis of the average annual increase for a series of

years, the per cent. of increase in average daily attendance for the budget year 1913 over 1912 and increase by this per cent. the amount spent on instruction during 1912. In short, all that is needed to prepare budgetary estimates (General Fund) for the day elementary schools is the record of average daily attendance and reports of expenditures, an account book.

The per cent. of increase in average daily attendance and the per cent. of increase in the cost of instruction in the day elementary schools were for the years 1906-1911 as follows:

Year	Per Cent. of Increase in Average Daily Attendance	Per Cent. of Increase in Cost of Instruction
1907 over 1906.....	4.21	5.45
1908 over 1907.....	5.20	5.36
1909 over 1908.....	1.92	4.44
1910 over 1909.....	1.50	3.52
1911 over 1910.....	4.40	2.87

It is clear from the foregoing that there is no exact relation year for year between the per cent. of increase in average daily attendance and the per cent. of increase in the cost of instruction. Nor is there any such relation for a series of years. The average annual per cent. of increase in average daily attendance and the average annual per cent. of increase in the cost of instruction were for the:

Period of Years	Per Cent. of Average Annual Increase in Average Daily Attendance	Per Cent. of Average Annual Increase in Cost of Instruction
Five-year period, 1907-1911.....	3.45	4.33
Four-year period, 1908-1911.....	3.26	4.05
Three-year period, 1909-1911.....	2.61	3.61
Two-year period, 1910-1911.....	2.95	3.20

Since there is no exact relation between the per cent. of increase in average daily attendance and the per cent. of increase in the cost of instruction, it follows that the per cent. of average annual increase in average daily attendance for a series of past years supplies no reliable basis, as claimed, for making budgetary requests in the general fund for the day elementary school.

(d) *Variability of Attendance Versus Variability of Register.*—Whether average daily attendance or register is made the basis of budgetary requests, it should be kept in mind that these requests must of necessity rest on an estimate. If the average daily attendance or the



register remained constant, that is, the same from year to year, or did each increase at the same rate year over year, it would be a simple matter to forecast the attendance or the register for which budget provisions should be made. Neither attendance nor register are constant; both vary from year to year. The greater the variability, the greater the difficulty of forecasting with exactness.

Table I gives for a series of years and for each month of the school year, with the exception of January and June,<sup>1</sup> the standard deviation,<sup>2</sup> also the average deviation<sup>2</sup> of the increases in the register at the end of the month; it gives also the same facts for the average daily attendance for the month.

**Table I—Deviation of Increase in Register Versus Attendance**

Month	Years Included in Series	Elementary School Including Kindergarten			
		Standard Deviation of Increases in		Average Deviation of Increases in	
		Register	Average Daily Attendance	Register	Average Daily Attendance
September.....	1902-12	7,075	39,338	5,734	31,654
October.....	1902-12	6,714	26,893	5,111	20,116
November.....	1902-11	6,684	5,155	4,841	4,256
December.....	1903-11	3,474	7,910	3,001	6,960
February.....	1902-12	7,258	8,189	5,947	6,644
March.....	1902-12	6,778	6,125	5,710	5,248
April.....	1902-12	6,805	7,885	5,515	6,875
May.....	1902-12	6,787	9,849	5,490	7,732

It will be observed that with the exception of November and March the standard deviation of the increases in the register is less than the standard deviation in average daily attendance; it will also be noted that the standard deviation of the increases in the register varies from 3,474 to 7,258, a range of 3,784, whereas in average daily attendance the variation is from 5,155 to 39,338, a range of 34,183. Similarly, with the exception of November and March, the average deviation of the increases in the register is less than the average deviation in attendance. The average deviation of the increases in the register varies from 3,001 to 5,947, a range of 2,946, whereas the average deviation in attendance is from 4,256 to 31,654, a range of 27,398.

<sup>1</sup> Data for January and June are omitted from the table, as they will be from all the subsequent tables of this report, because the official data for these months are not uniform in character.

<sup>2</sup> Average deviation is the average of the deviations from the arithmetic average. The standard deviation differs from the average deviation in that each of the deviations from the arithmetic average is given weight according to its size, thus placing greater emphasis on extreme deviation. See King, *Elements of Statistical Method*, pp. 121-158.

Being the greater variable, it is, therefore, more difficult to estimate with exactness average daily attendance than register. Hence, budgetary estimates based on a forecast of average daily attendance would be less reliable than estimates based on a forecast of the register.

(e) *Summary.*—Average daily attendance should not be made the basis of budgetary estimates for the day elementary school, because average daily attendance represents the minimum, and not the total, service of the school; because average daily attendance varies directly with the weather, amount of personal illness, festivities, etc.; hence is no reliable index of the number of teachers needed to care for a given register and, therefore, no reliable index of the actual needs of the schools; because there is no exact relation, as held, between average daily attendance and expenditures for instruction, hence budget making cannot be reduced to a mere matter of accounting; and because average daily attendance is more variable than register and in consequence budget estimates based on a forecast of attendance would be less reliable than budget estimates based on a forecast of the register.

2. REGISTER AS THE BASIS.—The budget estimate for the day elementary school for 1913 was based, as stated above, on an estimated register.

(a) *Pupils Included in Present Register.*—The actual register on which this estimated register was based included all pupils who had been members of the school and who had not been officially discharged.<sup>1</sup> Consequently, the register of a given school, for example, as of December 31st, may include children who have not been in attendance a single day between the opening of school in September and December 31st, or it may include children who have not been in school a single day in December, or who have been absent continuously ten or more days prior to the date of making the report.

The reported register as of December 31, 1911, of certain classes of eight schools of Manhattan and Brooklyn<sup>2</sup> was 13,297. There were included among these 13,297 pupils 214, or 1.61 per cent., who had been continuously absent from school ten days or more prior to the making of the report. If the amount of absence in all elementary schools was the same as in the foregoing eight schools, there were included in the reported register as of December 31, 1911 (656,598), 10,571 children who had been absent ten consecutive days prior to the making of the report.

Of the 13,297 pupils reported on the register of the foregoing schools as of December 31, 1911, 173, or 1.30 per cent., had not been in school a single day during the month of December. At the same rate,

<sup>1</sup> See By-Laws of the Board of Education, Sect. 45, 2A, p. 57.

<sup>2</sup> The eight schools in question are Numbers 23, 1, 83, 114, and 166, Manhattan, and 36, 73, and 85, Brooklyn. The register as herein reported for these schools is not in all cases the total register as of December 31, 1911. In some schools it was impossible to obtain without inconvenience the "Teacher's Class Records" for all classes.

there were included in the reported register as of December 31, 1911, for all elementary schools 8,536 pupils who in the month of December had not been in school an entire day.

Of the 13,297 pupils reported on the register of the foregoing eight schools as of December 31, 1911, 34, or .26 of 1 per cent., had not been in school between the opening of school in September and December 31st. At the same rate for the city as a whole, there were included in the reported register as of December 31, 1911, for all elementary schools 1,707 pupils who between September and December 31st had not been in school at all.<sup>1</sup>

What is true of the reported register of December is doubtless, within limits, true of the reported register of each of the other months of the school year.

The present policy of keeping a record of each child until the child is officially discharged on the order of the principal is, in our opinion, right. In a city as large as the City of New York, and in a city where there are such constant and radical shifts of population, there is need of utilizing every means of keeping track of children, to the end that each child of compulsory school age may be held in school. To accomplish this end, it is, however, not necessary to keep the names of children on the class roll or on the register of the school who have been absent for an entire month or who have not been in school at all during the given term. It is possible, in our opinion, to preserve the present policy of keeping track of all children and at the same time to purge the register of the names of all pupils who should not, as we believe, be included in a register which is to be used for administrative and budgetary purposes.

Pupils absent from school consecutively for a month, or who have not been in school at all during a given term, fall into one of three classes: (1) pupils absent for good and known reasons, *i. e.*, illness, quarantine, etc.; (2) pupils who have been transferred to other schools and who have failed to report to the school to which they were transferred; and (3) pupils who are out of school for unknown reasons. It is not necessary when a pupil is absent for good and known reasons that such a pupil be carried month after month on the working register of the school. After due routine, which could be easily prescribed, such a pupil might be taken from the class roll of the teacher and entered for purposes of record on a special list in the office of the principal. Similarly, when a child is transferred to another school, such a pupil might be dropped at once from the class roll of the given room and for purposes of record and control be entered on a special list in the office of the principal, instead of as under present practice kept on the class

<sup>1</sup> We do not affirm that the conditions in all other elementary schools are the same as in the eight schools studied. The results of our study of the "Teacher's Class Records" in the eight schools in question are suggestive of what is probably true of the reported register as of December 31st of all elementary schools.

roll until official report is received that the child has entered the school to which the transfer was given, or until a final report on the particular child is received from the attendance officer. Furthermore, instead of pupils who have not been in school at all during the given term being carried on the roll of a class month after month, to be marked absent day after day, thus lowering the per cent. of attendance in the given room, and being a continuous point of irritation to the teacher, all such pupils (after due routine on the part of the teacher) could be dropped from the roll of the given class and entered on a special list in the office of the principal. In a word, with respect to all cases of continuous absence, the duties of the teacher could be prescribed. These duties having been performed and proper record made thereof, the teacher would automatically take the names of the respective pupils from her class roll. These names would be placed on a special list in the principal's office and the principal charged with the responsibility for this list.

Register as employed in the elementary schools of the City of New York and as reported to the office of the City Superintendent of Schools at the end of each month of the school year includes, in view of the foregoing, the following groups of children:

- (1) Pupils regular in attendance.
- (2) Pupils irregular in attendance, but who have been in school at least one entire day during the given month.
- (3) Pupils absent for good and known reasons, but who have not been in school one entire day during the given month.
- (4) Pupils who have been transferred, but who have not as yet been officially reported as entering the school to which they were transferred, or on whom the attendance officers have not as yet made final report. Such pupils may or they may not have been in school one entire day during the given month.
- (5) Pupils who are absent for unknown reasons and who have not been in school one entire day during the given month.
- (6) Pupils who are absent for unknown reasons and who have not been in school an entire day during the given term.
- (b) *Register Proposed for Budgetary Purposes.*—A register which is to be made the basis of budgetary requests should be a record of the actual direct demands made on the time and energies of the teacher. Such a register for a given class and for a given month should be the record of the actual number of different pupils, exclusive of all transfers to other rooms of the same building or to other schools, who have been in the given class at least one entire day during the month, or it should be what is termed a total register for the month. Such a register represents within narrow limits the direct responsibility of the teacher for the given month, but does not, to be sure, represent the entire responsibility of the teacher; he or she has what may be called, for the

want of a better term, indirect responsibilities, viz., the necessity of looking after pupils who are continuously absent and who may not have been in attendance during the given month. Such a register, however, including, as it does, all pupils, exclusive of transfers, who have been in the class one entire day during the given month and excluding all pupils who have not been in school one entire day during the month, represents very closely actual demands and actual responsibilities; hence, it is our opinion that such a register would serve as a reasonable and just basis of estimating the register for which budget provisions are requested.

The difference between the register at the end of the month as now reported and the register we would propose to be used as the basis of budget estimates may be summarized as follows:

Register as Now Reported	Proposed Register
1. Includes pupils who have not been in school one entire day during the given month.	1. Includes only pupils who have been in school one entire day during the month.
2. May include pupils transferred to other schools.	2. Does not include pupils who have been transferred to other schools.
3. Excludes discharges (pupils officially dropped from school) who have been in school one entire day during the month.	3. Includes discharges (pupils officially dropped from school) who have been in school one entire day during the month.

Two objections may be raised to the proposed register. First, by excluding transfers, it may be held that there would be a number of pupils at the end of each month who had been transferred, but who had either not had time or who had delayed in entering the school to which they had been sent; in consequence such pupils would not be reported as of the register of any school. We do not feel that this is a real objection, but should this prove a real difficulty some simple way, we believe, could be found of removing it.

It may also be held that, since transferred pupils are excluded from the register, a given teacher may have instructed during the course of the month more pupils than such a register would show. This is true for any one teacher, but it is not true when a number of teachers are considered in relation to each other. A transferred pupil may have been under a teacher a part of a month and may not be reported as having been under the given teacher, but such a pupil would be reported by the teacher having the pupil at the end of the month; hence, the pupil is counted, but counted only once.

Second, since the proposed register includes pupils who have been in school during the month in question, but who have been officially discharged, pupils would be included in the register who, it is known, have

been discharged, and hence are no longer in school. This is true, but it should be remembered that the proposed register is not the register at the end of the month as now reported, but a total register for the month. Since these discharged pupils have been in school during the month in question, have occupied seats and have been under instruction, it is proper, we believe, to include them in a register which has as its object to represent the needs of the school, not at the end of the month, but for the month as a whole.

The present register is used both for administrative and budgetary purposes. The register we are suggesting to be used for budgetary purposes differs, as we have seen, from this register. The practical question is, Shall two different registers be reported, or would the register we are suggesting for budgetary purposes serve quite as well as the present register for administrative purposes, hence can it be substituted for the present register? The primary administrative use made of the present register is to determine the working conditions within the school, such as organization, distribution, and size of classes. The most important administrative action based on this register is to recommend the combination of small classes and the division of large classes. Before such recommendations are made, or at least before they are carried into execution, data supplementary to the reported register are, as a rule, obtained on the particular classes in question.<sup>1</sup> Neither the register as now reported nor the register we are suggesting for budget purposes gives, in our opinion, a reliable representation of the actual working conditions in the school at the end of the month. However that may be, the register we are suggesting for budget purposes gives, as we have seen (see pp. 24-25), a more reliable representation of the actual working conditions in the school at the end of the month than the register as now reported. Hence, there is no reason why the register suggested for budgetary purposes could not be substituted for the present register, provided the foregoing suggested administrative changes in keeping the register were made (see pp. 23-24).

While the register we are suggesting for budgetary purposes will serve reasonably well for administrative purposes, were the data needed for informational, administrative and budgetary purposes considered, it would be found necessary, we believe, to have the following monthly reports on register: (1) register to date; (2) register for the month; (3) average daily register for the month; and (4) register at the end of the month. Register to date shows for each class the total register or membership, exclusive of transfers, up to and including the date of the given monthly report. Register for the month shows for each class the total number of pupils, exclusive of transfers, in the given class at least one entire day during the given month. Average daily register for the month shows for each class the average daily membership, ex-

<sup>1</sup> See Blank: Application for Permission to Form or Divide Classes, on file at the office of the City Superintendent of Schools.

clusive of transfers, for the given month. Register at the end of the month shows for each class the actual membership of the class at the end of the month.<sup>1</sup>

Should those in educational authority deem it inadvisable, in view of other pressing demands, to collect monthly such detailed data on register as the foregoing, and to make the administrative changes involved in substituting the register we are proposing to be used for budgetary purposes for the present register at the end of the month, they should not be allowed to do less than to provide a separate column in the monthly report now made by each principal to show monthly for each class the total register for the month as defined above. In this way the data (register for the month), which should be made the basis of estimating the register for which budgetary provisions are requested, could be acquired without materially increasing the work of teachers and principals.

#### IV. The Individual School Versus the Entire System as the Unit in Estimating the Register.

A budget estimate has to do, not with the present, but with the future; hence, the need for which budget provision is to be made must be estimated. In the case of the school, the need for which budget provision is to be made can be expressed best, as we have seen, in terms of register. By reason of the time at which it is necessary to prepare the budget estimate for the elementary schools,<sup>2</sup> it becomes necessary to forecast from two to eighteen months in advance the register for which budgetary provisions are requested.

I. THE INDIVIDUAL SCHOOL AS THE UNIT.—Since the pupils for whom budget provisions are to be made will be in and will be cared for by a particular school, it would seem to follow that the way to find the total register for which budget provisions should be made would be to estimate what the register will be in each school for the period in question, and then to combine for the system as a whole these several estimated registers of the different schools.

(a) *Difficulty of Forecasting Total Register.*—To forecast from two to eighteen months in advance with sufficient reliability for budget purposes the probable total register of each of the several schools in the system is an impossible task. To be sure, in some elementary schools of the city the register from month to month and from year to year remains about the same. In such a school it is easy to forecast the total register. Table II shows the total register as of September 30th for the years 1907-1911 in one school of each of the boroughs:

<sup>1</sup> See Report of the Committee of the National Educational Association on Uniform Blanks and Uniform School Reporting.

<sup>2</sup> The estimate of the Board of Education is prepared as a rule early in July, prior to the given budget year.

**Table II—Register in Schools Having Practically Static Register**

Public School	1907	1908	1909	1910	1911
	Register	Register	Register	Register	Register
21 Manhattan.....	2,082	2,108	2,091	2,064	2,079
18 The Bronx.....	904	903	880	924	922
9 Brooklyn.....	922	955	927	967	934
11 Queens.....	846	861	833	831	863
1 Richmond.....	624	648	672	650	639

The variation September over September from year to year in the foregoing schools, it will be observed, is small. In consequence, it is easy to forecast with exactness the register of such schools one or even two years in advance. In most of the elementary schools of the city there is, however, a wide range in the total register from year to year. Table III shows the register as of September 30th for the years 1907-1911 in certain schools in the principal boroughs:

**Table III—Register in Schools Having Variable Register**

Public School	1907	1908	1909	1910	1911
	Register	Register	Register	Register	Register
30 Manhattan.....	1,991	1,785	1,760	1,810	1,739
49 Manhattan.....	1,893	1,792	1,492	1,357	1,245
169 Manhattan.....	1,563	1,606	1,749	1,842	1,940
171 Manhattan.....	3,547	3,668	3,743	3,090	3,449
28 The Bronx.....	2,056	2,263	2,431	2,661	2,652
30 The Bronx.....	1,975	1,758	2,200	2,693	2,670
37 The Bronx.....	2,253	1,841	2,145	2,191	2,270
40 The Bronx.....	2,314	2,557	2,717	2,999	3,983
45 Brooklyn.....	1,868	2,051	1,647	1,700	1,510
55 Brooklyn.....	2,179	2,416	2,002	2,305	2,528
144 Brooklyn.....	4,021	3,884	2,840	3,173	3,422
149 Brooklyn.....	4,248	4,789	4,402	4,467	4,362

The changes in the total register in the foregoing schools September over September from year to year are representative of the changes which occur September over September from year to year in the total register of a majority of the elementary schools of the city. Comparison of one year with another will reveal the fact that there is little uniformity in the rise or in the fall of the total register of a particular school. P. S. 30, The Bronx, is illustrative. The total register of this school September 30, 1907, was 1,975; there was a fall in 1908 to 1,758,



a rise in 1909 to 2,200, a further rise to 2,693 in 1910, and then a decline in 1911 to 2,670.

Many influences act and react to affect the total register of a given school. The opening of a new school in the neighborhood; the erection of new tenements and the razing of old ones in the immediate vicinity or in distant parts of the city; the erection of new factories and the removal of old ones, both near by and in remote sections; alterations in the character of buildings, for example, change of tenements into lofts and vice-versa; public improvements, such as the erection of new dock facilities and improvements in transportation; the organization of new companies, such, for example, as improvement companies; changes in the rent rate; changes in the policy of the Board of Education; increase or decrease in immigration; and so on, from a coal strike in Pennsylvania to a European war.

So numerous are the factors affecting the total register of a given school that it is impossible for a principal to know what the effects of these factors will be; in consequence, it is impossible for a principal to forecast with exactness two to eighteen months in advance the total register of his or her school. For example, on the basis of the increase in the total register of P. S. 30, The Bronx, September 30, 1907, over September 30, 1906 (approximately 281), the principal would have probably estimated the register as of September 30, 1908, at 2,200, but the actual total register as of that date was 1,758. Similarly, since there was a decrease in the total register of September 30, 1908, over 1907 of 217, it would have been reasonable to have estimated the register as of September 30, 1909, at something less than or at 1,758, whereas the actual total register as of the given date was 2,200. Since there was an increase of over 400 in the register of September 30, 1909, over 1908 and of 1910 over 1909, respectively, there were seemingly good grounds for estimating the register of September 30, 1911, at 3,000, but the actual register as of that date was even less than the register as of September 30, 1910, being only 2,670.<sup>1</sup>

(b) *Difficulty of Forecasting Distribution of Register.*—The greatest difficulty in attempting to forecast in advance the needs of a particular elementary school is not, however, in attempting to estimate the total register, but in attempting, as must be done, to forecast the probable distribution of the estimated total register. For, as we will see, the number of teachers needed in a given school and that can be used is not determined by the total register to be cared for only, but determined also by the way in which the total register distributes itself among the several grades and kinds of special classes, and by the particular conditions with respect to the size of class existing in the school at a given time.

Table IV shows for P. S. 186, Manhattan, by grades, the register

<sup>1</sup> By considering other factors these estimates might have been somewhat modified.

and the number of regular classes as of September 30th for the years 1907-1911:

**Table IV—Register and Classes in P. S. 186, Mann, September 30th, by Grades for Five Years**

Grades	1907		1908		1909		1910		1911	
	Register	Classes	Register	Classes	Register	Classes	Register	Classes	Register	Classes
8B.....	105	3	110	3	109	3	128	3	137	3
8A.....	103	3	103	3	159	4	134	4	133	4
7B.....	110	3	149	4	136	3	151	4	147	4
7A.....	139	3	149	4	152	4	135	4	165	4
6B.....	94	3	98	2	127	3	151	3	171	4
6A.....	120	3	131	3	125	3	162	4	189	4
5B.....	120	3	156	3	159	4	176	4	170	4
5A.....	135	3	160	3	196	4	154	4	155	4
4B.....	142	3	181	4	155	3	154	3	185	4
4A.....	123	3	194	4	142	3	129	3	175	4
3B.....	128	3	131	3	148	3	142	3	169	4
3A.....	132	3	127	3	121	3	163	4	173	4
2B.....	100	2	118	2	119	3	131	3	143	3
2A.....	123	2	127	2	164	4	146	3	151	3
1B.....	90	2	106	2	132	3	125	3	98	2
1A.....	112	2	156	3	162	3	168	3	171	3
Total.....	1,876	44	2,201	48	2,306	53	2,349	55	2,532	58

There was, it will be observed, an increase in the total register of the regular classes of P. S. 186, Manhattan, September 30, 1908, over September 30, 1907, of 325 pupils. This increase was not, it will be noted, confined to the 1A grade, and hence to an increase in the number of beginners, but was distributed among all the different grades with the exception of the 3A grade, in which there was a decrease. Similarly, with each of the other years in question, each year shows over the preceding year a total increase in the register; this increase is not confined, however, to any one grade, but is distributed irregularly among several grades, and is accompanied in certain grades by an actual decrease in register; as a result in a given grade there will be a decided increase one year, to be followed the next by as decided a decrease. To illustrate: The 7B's of September 30, 1907, are the 8B's of September 30, 1908. There were 110 7B's in 1907 and the same number of 8B's in 1908; whatever losses there were from the 7B's in advancing to the 8B grade were made up by the entry of new pupils. In contrast, there were 149 7B's in 1908 and only 109 8B's in 1909, a net loss of 40. Similarly, the 3B's of one year are the 4B's of the following year. There were in 1907 128 3B's and in 1908 181 4B's, an increase of 41 per cent. There was, however, an increase of only 18 per cent. in the number of

4B's in 1909 over the 3B's of 1908, an increase of only 4 per cent. in 1910 over 1909, but an increase of 30 per cent. in 1911 over 1910. To foretell what the gains or losses will be year over year among pupils in advancing from the A or B grade of one year to the A or B grade of the next year and to foretell such erratic increases and decreases in the register of the same grade year over year is obviously impossible. Hence, it is impossible to forecast with exactness the distribution of a total estimated register for a particular school among the several grades and kinds of special classes of the given school.

(c) *Difficulty of Forecasting Teachers Needed.*—A still more impossible task, but a task which must be essayed when the individual school is made the unit, is to attempt to foretell in what grades there will be such an increase in register as to necessitate the formation of an additional class and in what grades there will be such a decrease in register as to permit of the consolidation of classes. When the actual register of September 30, 1909, of P. S. 186, Manhattan, is compared, grade for grade, with the register of September 30, 1908, it will be observed that there were such increases in grades 6B, 5B, 5A, 2B, and 1B as to necessitate the formation of one or more additional classes, whereas in the grades of 4B and 4A there were such decreases as to permit of the reduction by one of the number of classes in these grades.

Further, it will be observed that whether the number of classes in a given grade is increased or decreased does not depend so much on the particular increase or decrease in register as on the size of the classes in the particular grade in the preceding year. For example, the increase in the 5B register in 1909 over 1908 was only three, but the size of the classes in this grade in the preceding year was such that there was need of an additional class, whereas there was an increase in 1908 over 1907 of thirty-six in the number of 5B pupils; yet the size of class was such that this increase of thirty-six pupils was cared for without increasing the number of 5B classes. Again, there was an increase in 1911 over 1910 of twenty-seven pupils in the 6A grade, but this increase was cared for without increasing the number of 6A classes; yet to care for exactly the same increase of 3B pupils (27), it was necessary to organize an additional 3B class.

Moreover, it must be borne in mind that at the time it is necessary to make the budgetary estimate, for example, the estimate for P. S. 186 for September, 1911, the latest available data are the data of September, 1909. A comparison by grades of the actual register and number of classes as of September 30, 1911, in P. S. 186, with the actual register and number of classes as of September 30, 1909 will reveal the difficulty of forecasting by grades on the basis of data no later than September, 1909, the register and number of classes as of September 30, 1911. To be sure, there are data at hand up to and including May 31, 1910. A comparison, however, by grades of the actual register and number of classes in P. S. 186, Manhattan, as of May 31,

1910, with the actual register and number of classes as of September 30, 1911, will show that data as of May 31st are of but slight aid in forecasting by grades the register and number of classes as of September 30th of the succeeding year. The following table shows by grades for P. S. 186, Manhattan, the register and number of classes as of May 31, 1910, and as of September 30, 1911:

Grades	May 31, 1910		Sept. 30, 1911	
	Register	Classes	Register	Classes
8B.....	138	3	137	3
8A.....	129	3	133	4
7B.....	148	4	147	4
7A.....	149	4	165	4
6B.....	126	3	171	4
6A.....	159	4	189	4
5B.....	153	4	170	4
5A.....	170	4	155	4
4B.....	145	3	185	4
4A.....	149	3	175	4
3B.....	129	3	169	4
3A.....	133	3	173	4
2B.....	158	4	143	3
2A.....	129	3	151	3
1B.....	152	4	98	2
1A.....	123	2	171	3
Total.....	2,290	54	2,532	58

(d) *Cost of Instruction as Basis of Estimating Need.*—Finally, there are those in authority, especially those having to do wholly with finance, who, failing to recognize the ever-changing character of the inner organization of the school, hold, while it may be impracticable to attempt to estimate from two to eighteen months in advance the register and number of classes, that the actual cost of instruction in a given school for past months and past years supplies a reliable basis of estimating the financial provisions which should be made for a given school in a given budget.

Table V shows for Manhattan, Brooklyn, and The Bronx the register and the expenditure for instruction in certain schools in September for the years 1907-1911:

Table V—Register and Expenditure for Instruction in September for Five Years

Schools	30 Manhattan		30 Bronx		45 Brooklyn		21 Manhattan		18 Bronx		9 Brooklyn	
Year	Reg- ister	Expendi- ture	Reg- ister	Expendi- ture	Reg- ister	Expendi- ture	Reg- ister	Expendi- ture	Reg- ister	Expendi- ture	Reg- ister	Expendi- ture
1907	1,991	\$5,067.71	1,975	\$3,248.99	1,868	\$4,392.95	2,082	\$4,942.84	904	\$2,110.48	922	\$2,974.80
1908	1,785	4,950.12	1,758	3,213.85	2,051	4,652.93	2,108	4,852.75	903	2,123.11	955	2,903.53
1909	1,760	4,827.50	2,200	3,549.99	1,647	4,389.74	2,091	4,580.09	880	2,039.33	927	2,861.42
1910	1,810	5,007.35	2,693	4,337.77	1,700	3,990.91	2,064	4,759.64	924	2,007.19	967	2,784.46
1911	1,739	5,228.09	2,670	4,800.99	1,510	3,973.29	2,079	4,733.71	922	2,106.44	934	2,729.67

The cost of instruction in a given school varies from month to month and from year to year with the register, the number of classes, and with the salaries of the particular teachers employed. The number of teachers needed to care for the same total register varies with the particular distribution of the register; the number of classes in a given school may be greatly increased or decreased one year over another; so also may the salaries of a given number of teachers for one year be much smaller or much greater than the salaries for the same number of teachers at another time. Hence, the cost on the side of instruction of operating a school one year is no reliable index of what it will cost for instruction in the same school the following year.

(e) *Unnecessary to Estimate Register of Individual School.*—Apart from the practical difficulties involved in attempting to estimate the register of a particular elementary school, there is no reason from a budgetary or educational point of view why the individual school should be made the unit in estimating the register for which financial provisions are requested. Children are handled in the elementary schools by grades, and a teacher is needed for each class, irrespective of the school in which the class may happen to be. In consequence, if budget provisions are made to care for the total estimated register for the system as a whole, teachers may be employed by the educational authorities and assigned by these authorities according as they are needed. Whether or not all the teachers for whom budget provisions are made will actually be required and the exact number of teachers it will be necessary to assign to a particular school, are *administrative questions* which can be answered only in view of the conditions in each of the several elementary schools.

(f) *Summary.*—It is, therefore, impracticable to make the individual school the unit in estimating the register for which budget provisions are requested, because:

(1) It is impossible, in the case of the great majority of the elementary schools of the city, to forecast with any considerable reliability

from six to eighteen months in advance what the total register of respective schools will be.

(2) It is impossible to forecast with any considerable reliability what the distribution of the estimated total register for a given school among the several grades and kinds of special classes will be.

(3) It is impossible to forecast with any considerable reliability in what grades there will be such increases in register as to necessitate the formation of additional classes and in what grades there will be such decreases in register as to permit of the consolidation of classes; hence, it is impossible to forecast with any considerable reliability the number of teachers needed in a given school.

(4) There are neither budgetary nor educational reasons why it is necessary to make the individual school the unit in estimating the register for which budget requests are made; to determine the actual needs of a given school at a given time is an *administrative* and not a *budgetary* question.

2. THE ENTIRE SYSTEM AS THE UNIT.—(a) *Relative Simplicity of Making the Estimate*.—When the system as a whole is made the unit in estimating the register, it is possible to ignore those factors within the city and within the school system which affect the probable register of the particular school (see p. 29). To be sure, the basis of estimating the total register, when the unit is the entire system as a whole, is the particular past registers of the several elementary schools combined. But it should be noted that the factors which cause the total combined register of all the elementary schools of the system to increase or to decrease, hence that affect what the total register of the system as a whole will be two to eighteen months in advance, are very different from the factors, such as the foregoing, which act to determine the particular distribution of this total register among the several elementary schools. In a word, in attempting to estimate two to eighteen months in advance the total register of a particular elementary school it is necessary to take into account both the factors which act to increase or to decrease the total register of the system as a whole, and especially the particular effect of these factors on the register of the given school; it is also necessary to take into account those factors which affect the distribution of pupils among the several schools of the system, and these are by far the more important factors to consider, whereas in attempting to forecast the total register of all the elementary schools of the system it is only necessary to consider those factors which act to increase or to decrease the register of the system as a whole. To estimate the total register for the system as a whole is, therefore, a much simpler task than to attempt to estimate the total register of a particular school.<sup>1</sup>

(b) *Relative Exactness of the Estimate*.—The total register of all elementary schools combined can be estimated with greater relative

<sup>1</sup> For the same reason, it is a simpler task to estimate the register for the system as a whole than to estimate the register of a particular district.

exactness than the total register of a particular elementary school. Data to prove this are not at hand; there are, however, available facts which go far toward doing it.

(1) It is an accepted principle that the variations in the group are less than the variations in the individual. When applied to the schools this principle would suggest that the variations month by month and year by year in the register of the system as a whole are less than the variations month by month and year by year in the register of a particular school. Table VI shows the per cent. of increase or decrease year over year in the register of certain schools as of September 30th for the years 1907-1911, also the same facts for the system as a whole:

**Table VI—Variation in Register of Individual Schools Versus Variation in Register of Entire System**

School No.	Borough	1907	1908		1909		1910		1911		
		Register Sept. 30	Register Sept. 30	Per Cent. of In- crease over or De- crease from 1907	Register Sept. 30	Per Cent. of In- crease over or De- crease from 1908	Register Sept. 30	Per Cent. of In- crease over or De- crease from 1909	Register Sept. 30	Per Cent. of In- crease over or De- crease from 1910	
GROUP I											
21	Man.	2,082	2,108	1.25	2,091	-.81	2,064	-1.29	2,079	.73	
18	Bx.	904	903	-.11	880	-2.55	924	5.00	922	-.22	
9	Bkn.	922	955	3.58	927	-2.93	967	4.31	934	-3.41	
11	Qu.	846	861	1.77	833	-3.25	831	-.24	863	3.85	
1	Rich.	624	648	3.85	672	3.70	650	-3.27	639	-1.69	
GROUP II.											
30	Man.	1,991	1,785	-10.35	1,760	-1.40	1,810	2.84	1,739	-3.92	
49	Man.	1,893	1,792	-5.34	1,492	-16.74	1,357	-9.05	1,245	-8.25	
169	Man.	1,563	1,606	2.75	1,749	8.90	1,842	5.32	1,940	5.32	
171	Man.	3,547	3,668	3.41	3,743	2.04	3,090	-17.45	3,449	-11.61	
28	Bx.	2,056	2,263	10.07	2,431	7.42	2,661	9.46	2,652	-.34	
30	Bx.	1,975	1,758	-10.99	2,200	25.14	2,693	22.41	2,670	-.85	
37	Bx.	2,253	1,841	-18.29	2,145	16.51	2,191	2.14	2,270	3.61	
40	Bx.	2,314	2,557	10.50	2,717	6.26	2,999	10.38	3,983	32.81	
45	Bkn.	1,868	2,051	9.80	1,647	-19.70	1,700	3.22	1,510	-11.18	
55	Bkn.	2,179	2,416	10.88	2,002	-17.14	2,305	15.13	2,528	9.67	
144	Bkn.	4,021	3,884	-3.41	2,840	-26.88	3,173	11.73	3,422	7.86	
149	Bkn.	4,248	4,789	12.74	4,402	-8.08	4,467	1.48	4,362	-2.35	
Entire Elementary School System . . . .		596,737	618,433	3.64	634,907	2.66	648,691	2.17	658,843	1.56	

The schools included under Group I are representative of the schools in the system which remain with respect to register more or less the same from year to year (see p. 28). It will be observed that of the five schools included under Group I the variation in the increase or decrease in register for the years in question is the smallest in P. S. 21,

Manhattan, in which school there was a variation in register from a decrease of 1.29 per cent. to an increase of 1.25 per cent., or a range in variation of 2.54 per cent.; but even this variation is larger by .46 of 1 per cent. in its range than the variation in the increase in the register of the system as a whole, 2.08 per cent.

The schools included in Group II are representative of the schools in the system in which the register changes considerably from year to year. (See p. 28). Of the twelve schools in Group II, the smallest range of variations during the years in question was in P. S. 169, Manhattan; the range of variation here was 6.15 per cent., which is larger than the range of variation in the system as a whole (2.08 per cent.) by 4.07 per cent. The highest range of variation in this group was in P. S. 144 the Bronx, 38.61 per cent., which is larger than the variation in the city as a whole by 36.53 per cent.

Obviously the wider the variation, the greater the difficulty of forecasting the register with exactness. No one will doubt that it is easier to forecast with exactness the register of a school like P. S. 21 Manhattan, than to forecast the register of a school like P. S. 144, Brooklyn. On the same grounds and for the same reasons, since the range of variation in the register of the system as a whole is probably less than the range of variation in the register of the least variable school in the system; it is easier to forecast with exactness the register of the system as a whole than the register of a particular school.<sup>1</sup>

(2) In the preparation of the budget estimate of 1912, the several principals of the elementary schools were asked to estimate for their respective schools, the register for which budget provisions were to be requested. While the blanks used in collecting and tabulating the data with respect to register, attendance, etc., were uniform for the city as a whole,<sup>2</sup> an examination of the estimates of the several principals fails to reveal any uniformity in the method employed in making the estimates.

The estimated register of the several elementary schools when combined was for December 31, 1911, 671,272.<sup>3</sup> The actual total register of the elementary system as a whole for December 31, 1910, was 644,685. Hence, the estimated increase in register of December 31, 1911, over December 31, 1910, was 26,587. The actual increase in the register of the system as a whole for

December 31, 1910, over 1909	was	16,734;
December 31, 1909, " 1908	"	19,130;
December 31, 1908, " 1907	"	14,810;
December 31, 1907, " 1906	"	21,836;
December 31, 1906, " 1905	"	23,031,

<sup>1</sup> For the same reason the register for the system as a whole can be forecasted with greater exactness than the register of a particular district.

<sup>2</sup> See Blank and Estimates on file at the office of the City Superintendent of Schools.

<sup>3</sup> From President Winthrop's letter to President Mitchel, dated September 1, 1911. See also Estimates of the Board of Education for 1912.



or an actual average annual increase in the system as a whole for the five-year period for December over December of 19,108; the actual increase of December 31, 1911, over December 31, 1910, was 11,913.

The estimated increase of 26,587 in the register of all elementary schools for December 31, 1911, over December 31, 1910, was, therefore, larger by 3,556 than the highest actual annual increase in the system as a whole, December over December, for any one of the years between 1905-1910; it was larger by 7,479 than the actual average annual increase in the system as a whole for the five years, 1905-1910, and it was larger by 14,674 than the actual increase of December 31, 1911, over December 31, 1910.

Further, the increase of December 31, 1912, over December 31, 1911, was estimated at 35,377, which was higher by 16,269 than the actual average annual increase for the five years 1905-1910 (19,108) and higher by probably 23,000 than the actual increase in the system as a whole of December 31, 1912, over December 31, 1911. (The actual increase of December 31, 1912, over December 31, 1911, will doubtless be even less than 12,000.)

Had the estimated register of December 31, 1911, and for December 31, 1912, been based on the actual increase December over December for a series of years in the register of the system as a whole and on conditions affecting the increase, these increases in register would not have been estimated at 26,587 and 35,377, respectively. At most, the actual average annual increase for the five years 1905-1910 (19,108) would probably have been taken as indicative of the probable increase. At all events, there was nothing in the actual annual increase year over year in the register of the city as a whole or in the conditions affecting the total register of the system to justify such increases as were estimated when the individual school was made the unit in making the forecasts.

These exaggerated estimated increases in the register when the individual school was the unit of the forecast and principals were relatively free to make their estimates in their own way illustrate how inexact such estimates are and how more exact estimates could easily have been made on the basis of the increase year over year for a series of years in the register of the system as a whole.

(c) *Only Estimate Necessary.*—Finally, even were it possible to estimate the register of a given school with the same relative exactness as the total register of the system as a whole, even then, in order to determine the total register for which budget provisions are to be made, it would be unnecessary and inadvisable to attempt to estimate the register of the several schools and to combine these several estimates to obtain the total register. It is possible, to be sure, to study the increase or the decrease in the total register of a particular school and to give the reason why the actual average increase or decrease for two, or three, or four years is used as the basis of the estimate, or it is possible to use

any other method and to give the reason therefor. In this case, however, there would be some 500 different estimates to verify and check.

But the more accurate these estimates for the individual schools, that is, the more nearly the estimated register of a particular date corresponded to the actual register of the given date, the more nearly these combined estimates for the individual schools would correspond to an accurate estimate for the system as a whole based on the entire system as the unit. Indeed, by reason of the fact that the register of the system as a whole is but the combined total of the register of each of the several schools of the system and all increases as well as all decreases in the registers of the particular schools are reflected in the total register of the entire system, it follows that, if the estimates for a given date for the several schools were absolutely exact and the estimate for the system as a whole for the same date was absolutely exact, the sum of the several estimates for the individual schools would exactly equal the total estimated register for the system as a whole. The foregoing is mathematically true, hence needs no supporting data.

There is, therefore, no need of making some 500 separate estimates to be verified, checked and combined in order to obtain the total estimated register for all elementary schools when this can be obtained even more accurately through one estimate based on the entire system as a unit.

Again, should it seem unwise to permit each principal to make the estimate for his or her school in his or her own way, and should principals be directed to proceed in a uniform way in making the estimates for their respective schools—directed, for example, to use in estimating the possible increase or decrease, the actual average annual increase or decrease for two, or three, or four years, or whatever the method—it follows from the relation between the total register and the register of the particular schools, providing the method used was the same in both cases, that the estimated register of the individual schools combined would be the same as the estimated register for the system as a whole when the entire system is made the unit. The truth of this is illustrated in the following table.

Table VII shows for each of the several schools of District 22, Manhattan, the estimated register for September, 1909, 1910, and 1911, when the individual school is the unit and when the actual average annual increase in register September over September for three years is made the basis of estimating the increase; it also gives the estimated register of the several schools for the respective years combined. The table shows, besides, the estimated register for District 22 as a whole, for the corresponding month and year, when the entire district is the unit, and the estimate for the district as a whole is made in the same way as the estimates for the individual schools:

**Table VII—Estimates for Individual Schools Versus Estimate for District as a Whole**

SEPTEMBER REGISTER FOR THE SEVERAL SCHOOLS IN DISTRICT 22, MANHATTAN										
School Number	Actual							Estimate for		
	1905	1906	1907	1908	1909	1910	1911	1909 Based on Average Annual Increase 1905-08	1910 Based on Average Annual Increase 1906-09	1911 Based on Average Annual Increase 1907-10
5	2,879	3,095	2,928	3,154	2,955	2,938	2,858	3,246	2,908	2,941
46	2,334	2,462	2,476	2,738	2,572	2,584	2,377	2,873	2,609	2,620
52	161	167	181	220	223	268	370	240	242	297
132	266	376	893	1,178	1,432	1,769	2,092	1,482	1,784	2,061
169	1,081	1,148	1,563	1,606	1,749	1,842	1,940	1,781	1,949	1,935
186	1,418	1,676	1,950	2,320	2,434	2,492	2,655	2,621	2,687	2,673
192	812	847	986	965	933	904	968	1,016	962	877
FOR THE SEVERAL SCHOOLS COMBINED										
Total....	8,951	9,771	10,977	12,181	12,298	12,797	13,260	13,259	13,141	13,404
FOR DISTRICT 22 AS A UNIT										
Dist. 22	8,951	9,771	10,977	12,181	12,298	12,797	13,260	13,258	13,140	13,404

Whether principals are to be left free to estimate the register of their respective schools or whether they are directed to proceed in a uniform way in making their respective estimates, or whatever the method employed in making the estimates for individual schools, there is nothing whatever from a budgetary point of view to be gained, unless it is the useless and probably impossible task of attempting to verify and check some 500 different estimates.

In preparing the budget estimate for 1913 the register for which provisions were requested was estimated for each of the several districts separately and these several estimates were combined.<sup>1</sup> What is true of the estimates for the several schools of the system is equally true of the estimates for the several districts of the system. Hence, in preparing a budget estimate it is not only unnecessary to attempt to estimate the register of the several districts, but to do it is needless work.

(d) *Summary.*—The system as a whole should be made the unit in estimating the register for which budget provisions are requested, because:

(1) It is a simpler task to estimate the register for the system as a whole than to estimate the register for the individual school or for a particular district.

<sup>1</sup> See Budget Estimate of Board of Education for 1913.

(2) The register for the system as a whole can be estimated with greater relative exactness than the register of the individual school of the particular district.

(3) By reason of the relation between the total register of the system as a whole and the total register of the individual schools, and of the particular districts, even if the estimate for the individual school or the particular district could be made with the same relative exactness as the estimate for the system as a whole, there is no need of making some 500 or even 46 separate estimates to be verified, checked and combined in order to obtain the total register for which budget provisions are to be requested, when this can be determined quite as well and even more exactly through one estimate based on the entire system as the unit.

#### V. Estimating the Total Register for the Entire System

The problem of determining the needs of the elementary schools for which budget provisions are to be made resolves itself, therefore, from this point of view, into the problem of finding some simple and reliable way of estimating the total register of the entire system of elementary schools for the budget period in question.

1. *Total Register a Variable.*—If the total register of the entire elementary school system remained the same from year to year and from month to month, or if the increase from year to year and from month to month, were regular, it would be an easy task to estimate the register for which budget provisions should be made. But the total register of the system as a whole changes from year to year and from month to month, and the increases year over year and from month to month differ materially.

Table VIII shows for each of the years 1902-1911, inclusive, the total register for the entire elementary school system as of December 31st, the increase December over December, and the per cent. of increase December over December; it also shows the same facts for May 31st:

**Table VIII—Increases in Register of Entire System Year Over Year**

REGISTER AS OF DECEMBER 31ST				REGISTER AS OF MAY 31ST		
Year	Register	Increase of Each Year Over Preceding Year	Per Cent. of Increase of Each Year Over Preceding Year	Register	Increase of Each Year Over Preceding Year	Per Cent. of Increase of Each Year Over Preceding Year
1902.....	477,403	.....	.....	445,964	.....	.....
1903.....	514,424	37,021	7.75	475,312	29,348	6.58
1904.....	533,518	19,094	3.71	509,969	34,657	7.29
1905.....	549,144	15,626	2.93	525,431	15,462	3.03
1906.....	572,175	23,031	4.19	543,967	18,536	3.53
1907.....	594,011	21,836	3.82	565,078	21,111	3.88
1908.....	608,821	14,810	2.49	587,465	22,387	3.96
1909.....	627,951	19,130	3.14	603,144	15,679	2.67
1910.....	644,685	16,734	2.66	620,422	17,278	2.86
1911.....	656,598	11,913	1.85	633,231	12,809	2.06

In a word, the total register of the elementary school system is a variable, that is, is a quantity which changes from month to month throughout the school year, and which increases year over year and month over month by different amounts. *To forecast from two to eighteen months in advance with absolute exactness such a variable as the total register of all elementary schools is impossible.*

2. *The Science of Forecasting.*—The science of forecasting is, to be sure, highly developed. This science deals, however, with constants or with variables, which increase or decrease uniformly and which act according to fixed and known mechanical laws, such, for example, as the movement of planets, of falling bodies, dispersion of light, chemical action and reaction, etc. The science of forecasting as developed and applied to astronomy, physics and chemistry makes, however, no pretense of being able to forecast a variable such as population, production of cereals, prices, etc., variables similar to the register of the elementary school. So also is the science of forecasting as applied to insurance highly developed. In insurance, however, it is possible to deal with classes or groups; for example, from the study of many individual cases it is found that persons forty-two years of age will, on the average, continue to live 26.7 years. While this is true for the forty-two-year-old group, how long a given individual within this age group will actually continue to live it is impossible to foretell, and for purposes of insurance it is not necessary to know. But for budget purposes we must know the register of the elementary schools as a whole as of a given date. The science of forecasting as developed and applied to science and to insurance is, therefore, not applicable to forecasting such a variable as the school register, because such a variable is not controlled by known laws, hence is not uniform in its increases or decreases, and because we cannot deal with averages for a long series of years, but must deal with a specific register of a given month and year.

Even though there is no science of forecasting applicable to estimating such a variable as the register of the elementary school, it is nevertheless necessary for budget purposes to make such a forecast. The problem of forecasting the register of the elementary schools resolves itself, therefore, into one of devising some practical and reliable way, *not scientific in the sense of being absolutely exact, of making the necessary forecasts.*

3. *The Estimates to Be Made.*—In small school systems there is, as a rule, little change in the total register after September. In consequence, if teachers are provided to care for the September register, these teachers are generally able to care for the register of the other months of the given school year. This is, however, not the case in the City of New York.

Table IX shows for the years 1907-1911 the total register of the elementary schools as of September 30th, the increase year over year in the September register, the number of classes as of September 30th,

and the increase year over year in the number of September classes; it shows the total register as of December 31st, the decrease in the December register from the register of the preceding September, the number of classes as of December 31st, and the increase in the number of December classes over the number in the preceding September; the table shows also these same facts for February 28th and for May 31st:

**Table IX—Decreases in Register Versus Increases in Number of Classes**

SEPTEMBER 30TH					DECEMBER 31ST			
Years	Register	Increase in Register of Each Year Over Preceding Year	No. of Classes	Increase in Number of Classes of Each Year Over Preceding Year	Register	Decrease in Register of December from Preceding September	No. of Classes	Increase in Number of Classes in December Over Preceding September
1907.....	596,737	19,167	14,031	675	594,011	2,726	14,204	173
1908.....	618,433	21,696	14,566	535	608,321	9,612	14,660	94
1909.....	634,907	16,474	15,780	214	627,951	6,956	14,895	115
1910.....	648,691	13,784	15,205	425	644,685	4,006	15,285	80
1911.....	658,843	10,152	15,735	530	656,598	2,245	15,817	82
FEBRUARY 28TH					MAY 31ST			
Years	Register	Decrease in Register of February from Preceding September	No. of Classes	Increase in Number of Classes of February Over Preceding September	Register	Decrease in Register of May from Preceding September	No. of Classes	Increase in Number of Classes in May Over Preceding September
1908.....	591,871	4,866	14,019	—12	587,465	9,272	14,128	97
1909.....	605,793	12,640	14,700	134	603,144	15,289	14,697	131
1910.....	623,095	11,812	14,951	171	620,422	14,485	15,059	279
1911.....	638,234	10,457	15,281	76	633,231	15,460	15,441	236
1912.....	650,258	8,585	15,817	82	646,096	12,747	15,896	161

It will be observed that in each of the years in question there was a decrease in the total register of the elementary schools from September to December, from December to February, and from February to May. In 1907 there were 9,272 less pupils on the register in May than in the preceding September; in 1908, 15,289; in 1909, 14,485; in 1910, 15,460; and in 1911, 12,747. In a word, the total register of the elementary schools is the largest in September, and this decreases gradually

each month after September throughout the school year.<sup>1</sup> It would, therefore, seem, even in the City of New York, that if provisions were made to care for the September register, such provisions would provide adequately for the register of each of the subsequent months of the given school year. Were this true, it would only be necessary in determining the register for which budget provisions were to be made to estimate the register of September over September and make the estimated September register the basis of the budget estimate.

It will be observed, however, that the movement in the number of classes is the reverse of the movement in register, that is, there is an increase in the number of classes from September to December, from December to February, and from February to May. In 1907 there were 97 more classes in May than in the preceding September; in 1908, 131; in 1909, 279; in 1910, 236, and in 1911, 161. In short, in a given school year the number of classes is the smallest in September and this number increases gradually each month after September throughout the school year.<sup>2</sup>

These changes in the number of classes, hence in the number of teachers required, indicate that the needs of the elementary schools change from month to month. Consequently, in making budget provisions for the elementary schools, it is not possible to base the budget estimate on the estimated September register only. Budget provisions based on the estimated September register, by reason of the fact, as shown above, that a large number of classes are organized year after year to care for a smaller register, would not provide adequately for the register of October or of November, or of December, or for the register of any other subsequent month. Hence, if adequate budgetary provisions are to be made for the elementary schools, it is necessary *to estimate the total register of the elementary school for each month of the school year in question* and to determine the needs of the schools for the respective month in view of the number of classes it will be necessary to organize in the given month to care for the given estimated register.

To those unfamiliar with school work, it might seem that the foregoing increase month by month in the number of classes in face of the decrease month by month in register was due to maladministration. An increase in the number of classes, despite the decrease in the total register, is to be expected in a system of elementary schools such as that of the City of New York for the following reasons:

First, in a system of schools as large as that of the City of New York, and in which there are such radical and unforeseen changes in the register of particular schools, it takes some time after the opening

<sup>1</sup> Now and then the November register is slightly larger than the September register. See Report on Register by Months on file at the office of the City Superintendent of Schools.

<sup>2</sup> There is now and then an exception to this general statement as will be noted.

and the increase year over year in the number of September classes; it shows the total register as of December 31st, the decrease in the December register from the register of the preceding September, the number of classes as of December 31st, and the increase in the number of December classes over the number in the preceding September; the table shows also these same facts for February 28th and for May 31st:

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Years	Register	Decrease in Register of February from Preceding September	No. of Classes	Increase in Number of Classes of February Over Preceding September	Register	Decrease in Register of May from Preceding September	No. of Classes	Increase in Number of Classes in May Over Preceding September
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<sup>2</sup> There is now and then an exception to this general statement as will be noted.

of the schools in September to adjust the school to the new conditions. In certain cases principals delay the consolidation of two small classes into one, expecting that these small classes will be increased in size by the entry of new pupils. In certain other cases principals delay the division of large classes, waiting to see whether or not it will prove necessary to form a new class, and even when the principal has decided to request a reduction or an increase in the number of classes in his or her school, it takes some little time to get the proper administrative machinery in motion to secure an indorsement of his or her request. As a result, owing to the number of changes to be made at the beginning of each school year in class organization, owing to the uncertainty with reference to the propriety of certain changes, and owing to the administrative delays incident to such changes, the number of classes as of September 30th does not necessarily represent the number of classes that should be organized to care for the register as of that date. Hence, the number of classes as of September 30th is not a reliable index of the number of classes needed to care for a given register.

Second, there is, to be sure, a decrease month by month in the total register of the elementary schools, but it should not be thought that the register, for example, of October 31st, is the register of September 30th, less a few pupils who have here and there dropped out of school. The register at the end of any one month of the school year, with the possible exception of June, is the net sum of the pupils on the register who have continued in school from the preceding month, plus thousands of pupils who have entered school during the given month, less thousands of pupils who have dropped out of school during the given month. Data are not at hand to show month by month with exactness the gains from pupils entering and the losses from pupils dropping from school. Data are at hand, however, which serve to illustrate the point.

During the February-June term, 1911, 30,995 pupils, exclusive of those leaving for private or parochial schools or for schools of other cities, dropped out of the regular classes of the elementary schools;<sup>1</sup> there is no reason to believe that a similar number of pupils did not drop from school during the preceding September-January term. The probabilities are, therefore, that approximately 61,990 pupils dropped out of the regular classes of the elementary schools of the city during the school year 1910-1911. If to this number there are added the 16,746 pupils who graduated in January, 1911, there was a total of approximately 78,736 pupils who were on the register sometime during the year, but who were not on the register June 30, 1911. The register of June 30, 1911, was 38,135 less than the register of September 30, 1910. In view, therefore, of a loss of at least 78,736 pupils from the register between September and June, in order that the register of June 30, 1911, should be only 38,135 less than the register of September 30, 1910, approximately 40,000 children must have entered school between

<sup>1</sup> See Report on Promotion, Non-Promotion and Part-Time, p. 105-110.

these two dates. Or, speaking in broad and general terms, approximately 8,000 children drop from school on the average each month of the school year, and approximately 4,000 new pupils enter.

In considering these losses and gains with reference to the number of classes required to care for a given register two points should be kept in mind: the losses are on the whole distributed more or less evenly throughout the schools of the entire city,<sup>1</sup> whereas the pupils entering or the gains are to a greater or lesser extent confined to relatively few schools and districts.<sup>2</sup> Since the losses are more or less evenly distributed, it should be apparent that by four or five pupils dropping out of each school the total register for all elementary schools for a given month would be materially lessened; yet it might be that it would be impossible to reduce the total number of classes required to care for the total register. Indeed, it so happens that the net loss of a school may be as high as twenty-three pupils from one month to another; yet it may be necessary to add an additional class, whereas in the same school the net loss from one month to another may run as high as ninety-one pupils, but still it may be impossible to reduce the number of classes.<sup>3</sup> Since the pupils entering school or the gains are confined principally to relatively few schools and districts, it should be obvious that the losses from other schools and districts more or less remote affect very little, if at all, the number of classes to be organized to provide for such pupils.

Third, the losses and the gains are not at the same point, that is, are not in the same grades. For example, P. S. 169, Manhattan, shows for October 31 over September 30, 1911, a net gain of six pupils. There was, however, in the 6B and the grades below the 4A a total gain of forty-two pupils, whereas in the D class and the grades above the 4A there was a total loss of thirty-six pupils. These losses in certain grades obviously do not aid in caring for the gains in certain other grades, indeed, to care for the net increase of seventeen pupils in the 1A grade it was necessary to add an additional class. Contrariwise, P. S. 169, Manhattan, shows from February 28 to March 31, 1912, a net loss of twenty-three pupils, which contributed, of course, to the decrease from February to March of the total register of all elementary schools. While P. S. 169, Manhattan, thus shows a net loss of twenty-three pupils from February to March, there was an actual net gain, in certain grades, of nineteen pupils.<sup>4</sup> In short, a given school may show a net gain of one month over another, and yet there may be a net loss in certain grades for the given month; similarly, a given school may

<sup>1</sup> See Report of Intermediate Schools, p. 7.

<sup>2</sup> The increase, for example, in the total register of all elementary schools, October 31, 1912, over October 31, 1911, was 9,383. Five thousand eight hundred and fifty-five (5,855), or 62 per cent. of this increase, was confined to the forty-two schools and four districts of the Bronx.

<sup>3</sup> See for P. S. 169, Manhattan, March and May, Table XVIII. (See insert between pages 66 and 67.)

<sup>4</sup> See Table XVIII.

show a net loss from one month to another, but there may be certain grades which show a net gain. Obviously, the losses in one grade in no way offset the necessity of caring for or aid in caring for the additions in other grades.

Fourth, it should also be borne in mind that the class organization of the school is materially affected by the semi-annual promotions which occur at the end of January and that classes to provide for the instruction of special groups of pupils are formed in increasing numbers as the school year advances.

It therefore follows from the foregoing that in a system of schools like that of the City of New York a net decrease in the total register of all elementary schools from one month to another in no wise necessarily makes possible a corresponding decrease in the number of classes. Indeed, such a net decrease, being as it is the resultant of net losses and net gains, which are unequally distributed among the several schools of the system and which do not occur at the same point, that is, in the same grades, makes necessary an increase rather than a decrease in the number of classes to be organized to provide for the given total register.

4. *Making the Estimates.*—Reference to Table VIII (p. 40) will reveal the fact that the register of December 31st increases year over year. To foretell the register of December 31st a year in advance, for example, the register of December 31, 1912, is, therefore, essentially a question of estimating what the increase of December 31, 1912, will be over December 31, 1911, and adding this estimated increase to the register of December 31, 1911; the total will be the estimated register of December 31, 1912. How is this probable increase for a given year over the preceding year to be estimated?

In any series of variables, such as the foregoing increases in register December over December, mathematically<sup>1</sup> the nearest constant is the arithmetic average of the series as a whole, that is, in the foregoing series of increases in register December over December the increase in register which is most constant throughout the series is the arithmetic average of the several increases. The average annual increase for the series, that is, the arithmetic average, being the nearest constant annual increase, mathematically *the safest* possible estimated increase of December 31, 1912, over December 31, 1911, would therefore be 19,910, the average annual increase in register of December 31st over December 31st for 1902-1911, inclusive. It will be observed, however, that in only three out of the nine years in question was the actual increase in register of December over December as high as 19,910, whereas in the remaining six years out of the nine the increase was less by from 780 to 7,997.

In attempting to estimate the increase in register of December 31, 1912, over December 31, 1911, and on the basis thereof to estimate the

<sup>1</sup> Wright: *The Adjustment of Observations*, pp. 29-34.

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register of December 31, 1912, it would mathematically, to be sure, be the safest to take as the increase of December 31, 1912, over December 31, 1911, the actual average annual increase in register December over December for a considerable series of years. But what the length of the series of years should be to yield the most practical estimate, that is, an estimated register relatively near the actual register of the given date, what the length of such a series of years should be can only be determined inductively and as good judgment at the time the given estimate is made would indicate.

Table X shows for December and for the years 1902-1911, inclusive, the actual total register of all elementary schools and the actual increase year over year; it also shows for each of the years 1908, 1909, 1910, and 1911 the amount and the per cent. an estimated register for December would be above or below the actual register should the estimated register for December be based on the actual average annual increase in register for the five preceding years, the four preceding years, three years, two years, or on the actual increase for one year; the table shows, besides, the same facts for May. (See insert between pages 46 and 47.)

From the foregoing it will be observed that it is impossible, as repeatedly stated, to forecast the register as of the end of a given month with absolute exactness, and this is true whether we use as the basis of the estimate the actual average annual increase in register for five years, or four years, or three years, or two years, or the actual increase for one year, or use any other basis that might be suggested. It will, however, be observed that in all the foregoing cases the estimates are relatively exact. The largest deviation in the estimated register as of December 31st from the actual register of that date is 1.40 per cent., the smallest .04 of 1 per cent., while the largest single deviation in the estimated register as of May 31st from the actual register as of that date is 1.12 per cent. and the smallest .01 of 1 per cent.

In estimating the register as of the end of a given month,<sup>1</sup> it is not necessary to arbitrarily assume that the average annual increase for the corresponding month, year over year, for five years, or four years, or three years, or two years, or the actual increase for one year, is the preferable basis to use. Each estimate affords opportunity for discretion and judgment.

For example, in making the forecasts for different budget estimates, if the question was estimating in July, 1910—approximately the time when estimates are made by the Board of Education—the register as of December 31, 1910, and the foregoing data in Table X were at hand up to and including December 31, 1909, the one making the estimate would study the increases in register December over December with care, especially the increases of the last one or two years; he would also take into account the movements month by month in the register

<sup>1</sup> When the proper data are available, an estimate would be made, of course, of the register for the month.

of the schools between January and June, 1910, observing whether or not, when compared with the corresponding months of the preceding year, there was a decided increase or decrease. With these data in hand, the one making the estimate might decide, all things considered, that the average annual increase for the three preceding years would supply the best basis. Reference to the reliability of estimates made in 1908 and 1909 (see Table X) on the average annual increase for the three preceding years might confirm his judgment. If, however, the problem was estimating in July, 1911, the register as of December 31, 1911, all things considered, it might seem best to base the estimate on the average annual increase for the two preceding years. Similarly, in attempting to estimate in July, 1910, the register as of May 31, 1911, the average annual increase for the three preceding years might seem, all in all, to afford the most reliable basis, whereas in attempting to estimate in July, 1911, the register as of May 31, 1912, the average annual increase for the two preceding years might seem preferable.

While estimated registers based on the actual average annual increase for a series of years ranging from one to five *are exact on the average within less than three-quarters of 1 per cent.*, it is impossible to fix on the series of years that will uniformly give the most exact estimate. The best series of years to employ at a given time, in making the estimate for a given month can only be determined by studying the increase in register for the given month, year over year, by studying especially the increases or the decreases in the last one or two years, and by studying the movements in the register of the schools during the months nearest to the month for which the estimate is to be made. When, however, a given series is selected of which the average annual increase in register is to be used as the basis of the estimate, to the end that the estimate may be verified and checked, the series should be indicated and the reasons for using the particular series given. Moreover, that data may be ready at hand to determine the most appropriate series of years to employ, and as a means of checking the reliability of the several series as the basis of making estimates, there should be prepared for each month of the school year tables similar to Table X for December and May, and these tables should be kept up to date.

5. *Checking the Estimates.*—The foregoing method of estimating the total register of all elementary schools as of a given month implies the use of no data other than the past registers of the month in question.

The increase in register of the elementary schools month by month and year over year is affected, of course, by the births and the deaths within the city, by persons coming to the city from other sections of the country, and by immigration. It would seem that a knowledge of these factors, along with definite information about the number of children in the city of school age, would serve, if not as the basis of estimating the register, at least as a reliable means of supplementing and correcting the estimates when made.



The Department of Health of the City of New York collect and publish annually the number of births and the number of deaths in the city as a whole, also the number of deaths by age; under one year, one year up to two, two up to three, three up to four, four up to five, five up to ten, ten up to fifteen, etc.<sup>1</sup> The data of the Department of Health on births and deaths are incomplete.<sup>2</sup> Even were these data complete, it would be impossible to determine from them the number of children of a given age living at a given time and the number actually living in the city, and, besides, it would be impossible to determine the number of those living and residing in the city who would attend the public school. Hence, however valuable the foregoing vital statistics may be for other purposes, for purposes of estimating the register of all elementary schools at the end of a given month or for purposes of correcting such an estimate when made they are valueless.

Thousands of families doubtless move to the city annually from other sections of the country. But the number of such families, the number and the ages of their children, and the number of these that will attend the public school is unknown. Hence, while the number of children on the register of the elementary schools of the city is unquestionably increased by the incoming of children from other places of the country, nothing sufficiently definite is known to be of use either in estimating or in correcting the register for which budget provisions are requested.

In a city such as the City of New York, composed, as it is, largely of foreigners, it would seem that there would be a direct relation between the increase or the decrease in the register of the elementary schools and the volume of immigration. Table XI shows for the years 1901 to 1911, inclusive, the total immigration into the United States and the per cent. of annual increase or decrease; it shows also the same facts for the total immigration with destination New York State, for the total immigration under fourteen, and for the net enrollment (total number of different pupils on the register of the elementary schools of the city). (See table, page 50.)

It will be observed that it is impossible to correlate the increase or the decrease in the total immigration of a given year with the increase or the decrease in the net enrollment of the elementary schools for the same year or the succeeding year. For example, in 1907 the increase in total immigration over 1906 was 16.77 per cent. and the increase for the corresponding year in the net enrollment of the elementary schools was 2.14 per cent., whereas there was a decrease in total immigration in 1908 from 1907 of 39.09 per cent., but an increase in net enrollment in 1908 of 2.32 per cent. It is equally impossible to correlate the increases and the decreases between total immigration with destination New York State and net enrollment, or between immigration under

<sup>1</sup> Report of the Department of Health for 1909, pp. 274-275.

<sup>2</sup> Report of the Department of Health for 1908, p. 813, also for 1909.

Table XI—Total Immigration and Net Enrollment for Ten Years

Year	Total Immigration to U. S. for Fiscal Year Ending June 30th	Per Cent. of Increase over or Decrease from Preceding Year	Total Immigration with Destination New York State	Per Cent. of Increase Over or Decrease from Preceding Year	Total Immigration Under 14	Per Cent. of Increase Over or Decrease from Preceding Year	Net Enrollment All Elementary Schools for Year Ending June 30th	Per Cent. of Increase Over or Decrease from Preceding Year
1901.....	487,918	.....	167,241	.....	62,562	.....	540,205	.....
1902.....	648,743	32.96	203,824	21.87	74,063	18.38	567,153	4.99
1903.....	857,046	32.11	254,665	24.94	102,431	38.30	551,867	2.70
1904.....	812,870	5.15	263,150	3.33	109,150	6.56	594,407	7.71
1905.....	1,026,499	26.28	315,510	19.90	114,668	5.06	625,163	5.17
1906.....	1,100,735	7.23	374,703	18.76	136,273	18.84	643,373	3.71
1907.....	1,285,349	16.77	386,244	3.03	138,344	1.52	662,227	2.14
1908.....	782,870	39.09	256,425	33.61	112,148	18.94	677,615	2.32
1909.....	751,786	3.97	220,865	13.87	88,393	21.18	683,807	.91
1910.....	1,041,570	38.55	280,880	27.17	120,509	36.33	693,246	1.38
1911.....	878,587	15.65	260,278	7.33	117,837	2.22	711,861	2.69
1912.....	838,172	4.60	239,275	8.07	.....	.....	.....	.....

fourteen and net enrollment. In a word, a large increase in immigration undoubtedly tends to augment the increase in register and a decided decrease in immigration to lessen the increase; but so subtle and so many are the factors acting and reacting on the register of the elementary schools that it is impossible to reduce the relation between register and immigration to such definite terms that a knowledge of the movement in immigration at a given time can be directly used to check or correct a given estimated register.

An important aid in determining the needs of the elementary schools would be an accurate school census showing by months and by school-ages the exact number of children in the city. Up to the present time, however, it has been impossible for the Board of Permanent Census to supply such data.

Although it is impossible to determine with such definiteness as to be useful in estimating a probable register or in checking the estimate when made, the effect on the register of the schools of the natural growth of the city or of families moving in from other parts of the United States or of immigration, what the combined effect of these factors will be, that is, whether or not their combined effect will be such as to bring about a probable normal increase in register or a decided increase or decrease, is indicated more or less clearly for the Spring Term, February-June, in the per cent. of increase of February over February and for the Fall Term, September-January, in the per cent. of increase of September over September.

Table XII shows for each of the years 1902-1911, inclusive, for

each month of the Spring Term, except June, and for each month of the Fall Term, except January, the per cent. of increase in register year over year, and for the Spring Term the amount that the per cent. of increase in register of each month is above or below the per cent. of increase in the preceding February over February, also the same facts for the several months of the Fall Term. (See table, page 52.)

It will be observed that when comparison is made for a given month of the Spring Term, for example, February, between the per cent. of increase in the register year over year, there is a marked difference in these annual increases. The per cent. of increase of February, 1904, over February, 1903, was larger, for example, by .87 of 1 per cent. than the per cent. of increase of February, 1903, over February, 1902. On the other hand, the per cent. of increase of February, 1905, over 1904 was less by 4.35 per cent. than the per cent. of increase of 1904 over 1903. The differences between the per cent. of increase in the same term, March over February, April over February, and May over February, it will be noted, are less than the differences in the per cent. of increase of February over February. This indicates that the factors which affect the register, while they operate differently in different years, operate more or less uniformly throughout the same Spring Term. Consequently, the per cent. of increase in register February over February may be taken as an index of the per cent. of increase year over year for the remaining months of the same Spring Term. For the same reason the per cent. of increase in the register for September over September may be taken as an index of what the per cent. of increase in register will be for the remaining months of the Fall Term.

Moreover, while the factors which operate to increase or decrease the register act differently year over year and act differently in the Spring Term from in the Fall Term, and while the combined effect of these forces is indicated more or less clearly for the Spring Term in the February register and for the Fall Term in the September register, there is no direct break or difference between the action of these factors toward the end of a given Spring Term and the beginning of the following Fall Term. Hence, the per cent. of increase in the register of May over May is within narrow limits an index of the per cent. of increase in the register of the following September over September; and the per cent. of increase in register December over December is within narrow limits an index of the increase in the register of the following February over February. With data at hand such as is given in Table XII it is, therefore, possible to eliminate estimates which would give an increase in the register of a given month which is clearly exceptional or which has little or no basis at all in the past experience of the school.

Table XIII shows the per cent. of increase in the estimated register of September over the actual register of the preceding September for the years 1908, 1909, 1910, 1911, and 1912, when the respective estimates are made on the basis of the average annual increase for the five

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Table XII—Comparison by Months of Annual Rate of Increase in Register

Year	(1) Per Cent. of Increase in Register of Feb. 28th Over Register of Preced- ing Feb. 28th	(2) Per Cent. of Increase of Feb. Over Feb. (+) Above or (—) Below Per Cent. of Increase of Dec. Over Dec.	(3) Per Cent. of Increase in Register of Mar. 31st Over Register of Preced- ing Mar. 31st	(4) Per Cent. of Increase of Mar. Over Mar. (+) Above or (—) Below Per Cent. of Increase of Feb. Over Feb.	(5) Per Cent. of Increase in Register of Apr. 30th Over Register of Preced- ing Apr. 30th	(6) Per Cent. of Increase of Apr. over Apr. (+) Above or (—) Below the Per Cent. of Increase of Feb. Over Feb.	(7) Per Cent. of Increase in Register of May 31st Over Register of Preced- ing May 31st	(8) Per Cent. of Increase of May Over May (+) Above or (—) Below the Per Cent. of Increase of Feb. Over Feb.	(9) Per Cent. of Increase in Register of Sept. 30th Over Register of Preced- ing Sept. 30th	(10) Per Cent. of Increase of Sept. Over Sept. (+) Above or (—) Below the Per Cent. of Increase of May Over May	(11) Per Cent. of Increase in Register of Oct. 31st Over Register of Preced- ing Oct. 31st	(12) Per Cent. of Increase of Oct. Over Oct. (+) Above or (—) Below the Per Cent. of Increase of Sept. Over Sept.	(13) Per Cent. of Increase in Register of Nov. 30th Over Register of Preced- ing Nov. 30th	(14) Per Cent. of Increase of Nov. Over Nov. (+) Above or (—) Below the Per Cent. of Increase of Sept. Over Sept.	(15) Per Cent. of Increase in Register of Dec. 31st Over Register of Preced- ing Dec. 31st	(16) Per Cent. of Increase of Dec. Over Dec. (+) Above or (—) Below the Per Cent. of Increase of Sept. Over Sept.
1903....	6.73	.....	6.20	-.53	6.38	-.35	6.58	-.15	7.19	+.01	7.21	+.02	7.45	+.20	7.75	+.56
1904....	7.60	-.15	7.14	-.46	7.34	-.26	7.29	-.31	6.10	-2.19	4.45	-.05	3.92	-1.18	3.71	-1.39
1905....	3.25	-.46	3.19	-.06	2.95	-.30	3.03	-.22	2.77	-.26	2.79	+.02	2.86	+.09	2.93	+.10
1906....	3.24	+.31	3.27	+.03	3.65	+.41	3.53	+.29	4.00	+.47	4.06	+.06	4.17	+.17	4.19	+.10
1907....	4.01	-.18	3.96	-.05	3.73	-.28	3.88	-.13	3.32	-.56	3.66	+.36	3.80	+.48	3.82	+.50
1908....	4.00	+.18	4.32	+.32	4.20	+.20	3.95	-.04	3.64	-.32	2.84	-.80	2.72	-.92	2.49	-1.15
1909....	2.35	-.14	2.17	-.18	2.28	-.07	2.67	+.32	2.66	-.01	2.93	+.27	2.96	+.30	3.14	+.48
1910....	2.86	-.28	3.07	+.21	2.77	-.09	2.86	.00	2.17	-.69	2.70	+.53	2.68	+.51	2.66	+.49
1911....	2.43	-.23	2.12	-.31	2.42	-.01	2.06	-.37	1.56	-.50	1.74	+.18	1.60	+.04	1.85	+.29
1912....	1.88	+.03	1.99	+.11	2.10	+.22	2.03	+.15	1.68	-.35	1.43	-.25	.....	.....	.....	.....

preceding years, the four preceding years, three years, two years, and on the basis of the increase for one year; it also shows for each year and for each estimate the amount that the per cent. of increase in the estimated register of September over the actual September register of the preceding year is above or below the per cent. of increase in the actual register of the preceding May over May:

**Table XIII—Per Cent. of Increase in Estimated September Register Above or Below Actual September Register, and Above or Below Per Cent. of Increase in Actual Register May Over May**

Year	Per Cent. of Increase in Estimated September Register Over Actual September Register of the Preceding Year, When Estimated Register is Based on:					The Amount That the Per Cent. of Increase in the Estimated Register of September Over the Actual September Register of the Preceding Year is (+) Above, or (—) Below the Per Cent. of Increase in Register of the Preceding May Over May, When the September Estimate is Based On:				
	Average Annual Increase in Register for 5 Pre-vious Years	Average Annual Increase in Register for 4 Pre-vious Years	Average Annual Increase in Register for 3 Pre-vious Years	Average Annual Increase in Register for 2 Pre-vious Years	Increase for 1 Year Preceding	Average Annual Increase in Register for 5 Pre-vious Years	Average Annual Increase in Register for 4 Pre-vious Years	Average Annual Increase in Register for 3 Pre-vious Years	Average Annual Increase in Register for 2 Pre-vious Years	Increase in Register for 1 Year Preceding
1908.....	3.92	3.46	3.15	3.47	3.21	— .04	— .50	— .81	— .49	— .75
1909.....	3.37	3.16	3.40	3.30	3.51	+ .70	+ .49	+ .73	+ .63	+ .84
1910.....	2.98	3.13	3.01	3.01	2.59	+ .12	+ .27	+ .15	+ .15	— .27
1911.....	2.88	2.74	2.67	2.33	2.12	+ .82	+ .68	+ .61	+ .27	+ .06
1912.....	2.47	2.36	2.04	1.82	1.54	+ .44	+ .33	+ .01	— .21	— .49

With the data at hand found in column (10), Table XII (p. 52), up to but not including the year for which the given September estimate is to be made, it is clear in making the estimate, for example, for September, 1909, that estimates based on the average annual increase for the five-year period, for the three-year period, for two years and on the increase for one year could be eliminated on the ground that there is no basis in the past increases in register to justify the expectation that the per cent. of increase in the September register over September will be higher than the per cent. of increase in the register of the preceding May over May by .70, .73, 63, or .84 of 1 per cent. Accordingly the estimate would be based on the average increase for the four preceding years, because this estimate would give an increase in register which would conform most nearly to actual increases of the past. Similarly, if the question were estimating the register for Sep-

tember, 1911, estimates based on the average annual increase for five years, four years and three years could at once be eliminated. The problem remaining would be to decide whether or not in view of the increase in the register of September over September for the last few years, it was preferable to use as the basis of the estimate the average annual increase for two years or the actual increase for one year. A study of the actual increase in register of September over September and of the per cent. of increase of September over September (Table IX, p. 42, and Table XII, p. 52) would tend to the conclusion that it was on the whole safer to use the average annual increase for the two preceding years as the basis of the estimate.

In making the estimate for September, it is thus possible for the Board of Education to check the given estimate on the basis of the actual register of the preceding May.

Again, had the Board of Education in attempting to estimate in July, 1911, the register of December, 1911, made an estimate on the basis of the average annual increase of December over December for the five preceding years, the four preceding years, three years, two years and on the basis of the increase for one year, the per cent. of increase in the estimated register of December, 1911, over the actual register of December, 1910, would have been respectively as follows: 2.95 per cent., 2.80 per cent., 2.61 per cent., 2.77 per cent. and 2.58 per cent.<sup>1</sup> The per cent. of increase of these several December estimates above the per cent. of increase of the estimated register of September, 1911, over the actual September register of 1910 would have been as follows: .62, .47, .28, .44 and .25 of 1 per cent. Reference to column (16) of Table XII (p. 79) would make it clear that the estimate based on the five-year period could be eliminated, having no basis in the experience of the schools, and that the choice of the series to be used lay between four years and two years. A study of the actual increase for December year over year, of the per cent. of increase in the December register year over year (Table VIII, p. 40), and of the movements in register from February to May, 1911, would have probably led to the conclusion that the two-year period would supply the preferable base for estimating the register of December, 1911. Such a base would have given an estimated increase of December, 1911, over December, 1910, of 2.77 per cent. against the estimated increase of the Board of Education of 4.12 per cent. As a matter of fact, the actual increase of December, 1911, over December, 1910, was 1.85 per cent. Hence, the Board of Education estimate was 2.27 per cent. too high, whereas the estimates if made and checked as suggested above would have been .92 of 1 per cent. too high.

In the same way it is possible to check the estimate for February against the estimated register for the preceding December and, in turn,

<sup>1</sup> The estimated increase is found by adding to the actual rate of increase (column (15), Table XII, p. 52) the per cent. the estimated increase is above the actual rate of increase (Table X). (See insert between pages 46 and 47.)

to employ the estimated register for February to check the estimates for the following March, April, and May.

6. *Supplementing the Estimate Made in July.*—In checking the relative exactness of the several estimates, when these are made on the basis of the average annual increase for five years, or four years, or three years, or two years, or on the basis of the increase for one year, or whatever the basis employed, it should be noted that, while it is necessary for the Board of Education to make their estimates at least some time prior to the opening of school in September, the estimates submitted are not finally passed on by the Board of Estimate and Apportionment until October 31st. This makes it possible to obtain the actual register for September. Hence, in reviewing the estimates of the Board of Education, it is possible for the Board of Estimate and Apportionment to use the actual register rather than an estimated register for September as the basis of checking the estimates for the following months of the Fall Term. The possession of the actual register of September also makes it possible to check more accurately the estimated register of February, and hence to check more accurately the estimates for the subsequent months of the Spring Term and of the following Fall Term. It is, therefore, probable that there will be a considerable difference between estimates made in July and estimates made after the actual September register is at hand. If such differences are found, it ought not to be held against the Board of Education, providing their estimates are made on the basis of the facts in hand at the given time. In view of the significance of the September register as the basis of checking estimates made in July, much discussion and many misunderstandings, resulting at times doubtless in injury to the schools, could be obviated, if after the register of the elementary schools is known in September the Board of Education would submit to the Board of Estimate and Apportionment supplementary estimates, accompanied by a statement of the changes made possible in their requests by reason of knowing the actual September register.

7. *Estimated Register to Be Viewed as a Whole.*—Finally in making an estimate, for example, for December, the probable increase in register for the given December over the preceding December is fixed on; this estimated increase is added to the actual register of the preceding December and the sum is the estimated total register for the December in question. For this reason, however, it should not be thought that the estimate can be divided into the register as of the preceding December—a fixed and known quantity—and into a particular increase in register—the new element. The actual total register of the December in question, and of which the estimate is a forecast, bears no such direct relation to the elements used in making the forecast. The actual register of the December in question will include many of the pupils on register in the preceding December, but many of the pupils in school then will have dropped out, many new pupils distributed among the

several grades will have entered, and altogether the new and the old will be so blended that, while mathematically it is possible to say there is such and such an increase in the register of December over December, it is practically impossible to separate the new pupils so as to determine the number of new classes to be organized to care for them. In a word, in the administration of the schools classes are not formed for the pupils who were on the register the preceding December and for the pupils on the register for the first time in the December in question separately, but classes are formed according as the number of pupils in given classes makes the organization of new classes necessary. Hence, when the register is estimated for a given month and year the estimated register, representing as it does the probable number of pupils to be instructed, should be viewed as a whole, and budget requests made to care for the estimated register as a whole, rather than that budget requests should be made, as is practically the case now, to care for the old or fixed element of the estimated register and for the estimated increase in register, or the new element.<sup>1</sup>

## VI. Estimating the Distribution of the Total Estimated Register

1. *The Distributions to Make.*—In order to determine the number of teachers for whom budget provision should be made it is not only necessary to know by months the total estimated register for all elementary schools, but it is necessary to know, besides, the estimated distribution of this estimated register, that is, the estimated register of each of the several grades and kinds of special classes, (a) because the distribution of the actual register differs for the same month from year to year and for different months of the same school year; (b) because the number of pupils instructed per teacher differs with the grade and kind of special class, hence the number of teachers needed varies with the number of pupils in the several grades; (c) because the salaries of teachers vary according to whether they teach in the grades 1A—6B, 7A—8A, 8B, or in special classes, such as classes for mentally defective children,<sup>2</sup> and (d) because the amount of money needed for supplies varies with the number of pupils in each of the grades and kinds of special classes.<sup>3</sup>

Table XIV shows for all schools in District 22, Manhattan, for the years 1905-1911, inclusive, the per cent. of the total December register in each grade and kind of special class. (See table, page 57.)

Table XV shows for all elementary schools of the city as a whole for September, 1911, and for May, 1912, the distribution of the register

<sup>1</sup> Estimate of the Board of Education for 1913.

<sup>2</sup> Document No. 1, 1912, Schedules of Teachers' Salaries.

<sup>3</sup> Report on Bureau of Supplies by Mr. Stewart, p. 33.



Table XIV—Per Cent. of December Register in Each Grade

Year	1A	1B	2A	2B	3A	3B	4A	4B	5A	5B	6A	6B	7A	7B	8A	8B	C. D. & E.	Kinder- garten	Defec- tive
1905.....	9.06	7.14	8.12	8.04	8.16	7.50	7.20	6.67	5.56	4.99	4.95	4.51	4.08	3.89	2.96	3.00	.....	4.16	.....
1906.....	7.15	5.08	8.16	7.26	8.41	7.17	8.53	7.23	6.42	5.31	4.88	4.49	4.08	3.31	3.25	2.90	2.44	3.94	.....
1907.....	7.31	4.65	6.76	6.92	7.49	6.89	7.38	6.90	7.39	6.11	5.20	5.18	4.52	3.73	3.56	2.93	3.01	4.08	.....
1908.....	6.74	5.17	6.29	6.15	7.14	6.43	7.86	7.06	7.09	6.38	5.83	4.39	4.74	3.91	3.70	2.86	4.00	4.11	.14
1909.....	8.52	5.38	6.58	6.33	5.91	6.01	6.68	6.58	7.25	6.54	6.40	5.27	4.95	3.66	4.28	3.23	2.53	3.74	.15
1910.....	7.70	5.44	6.56	5.76	6.50	6.66	6.03	5.79	6.65	6.84	6.48	6.14	5.03	4.71	3.97	3.33	2.64	3.48	.28
1911.....	8.03	5.01	6.46	5.88	6.23	6.32	7.06	6.42	5.61	6.57	6.38	5.65	5.26	4.46	4.01	3.49	2.84	3.93	.36

and the average size of class in the several grades, also the per cent. of the total register in each grade:

**Table XV—The Distribution of the September and May Registers and the Size of Class in Different Grades**

	8B Grade	7A-8A Grades	1A-6B Grades	C. D. & E. Classes	Kinder- garten	Ungraded Classes	Classes for De- fectives
SEPTEMBER 30TH, 1911							
Register.....	20,094	80,220	496,126	30,538	29,429	1,732	1,093
No. of Classes.....	526	2,032	11,249	930	849	110	66
Average Size of Class.	38.20	39.48	44.10	32.84	34.66	15.75	16.56
Per Cent. of Total Register in Each Grade.	3.05	12.17	75.26	4.63	4.46	.26	.17
MAY 31ST, 1912							
Register.....	21,261	77,599	484,348	28,083	31,175	2,137	1,493
No. of Classes.....	549	2,049	11,334	888	845	133	95
Average Size of Class.	38.73	37.87	42.73	31.62	36.89	16.07	15.72
Per Cent. of Total Register in Each Grade.	3.29	12.01	74.97	4.35	4.82	.33	.23

It will be observed from Table XIV that the distribution of the total register of District 22, Manhattan, is different for each of the years in question. For example, the December 8B register in 1905 was 3 per cent. of the total December register; in 1906, 2.90 per cent.; in 1907, 2.93 per cent.; in 1908, 2.86 per cent.; in 1909, 3.23 per cent.; in 1910, 3.33 per cent., and in 1911, 3.49 per cent.<sup>1</sup> What is true of the distribution of the total register of District 22, Manhattan, is doubtless true of the distribution of the register of the elementary schools of the city as a whole. It will be observed from Table XV that the distribution of the register varies from month to month within the same school year. Of the total September register for all elementary schools in 1911, 3.05 per cent. were in the 8B grade, whereas of the total May register, 1912, 3.29 per cent. were in the 8B grade.

Finally, it will be seen from Table XV that in September, 1911, the number of pupils taught on the average per 8B teacher was 38.20, in May, 1912, 38.73; each kindergartner was instructing on the average in

<sup>1</sup> Similar data for a number of years for the elementary schools of the city as a whole are not available. The register of the grades and kinds of special classes for the months of January and June have been reported for a number of years in the annual reports of the City Superintendent of Schools, but the difference between the total register and in his reports and the total register as reported in the Journal of the Board of Education are so great that we hesitate to use the data for January and June as given in the reports of the City Superintendent of Schools.

September 34.66 pupils, in May 36.89; the average size of C, D, and E classes in September was 32.84, in May 31.62. Similar differences exist from month to month in the number of pupils instructed per teacher in other grades and kinds of special classes.

2. *Estimating the Distribution.*—The total register of all elementary schools for a given month of a particular year is the sum total of the registers in all elementary schools for the given month and year of each of the several grades and kinds of special classes. Any increase or decrease in the total register of all elementary schools for a given month and year over the corresponding month of a preceding year is, therefore, the net result of increase or decrease as compared with the preceding year in the combined registers in all elementary schools of the particular grades and kinds of special classes. In short, the increase or the decrease year over year in the total register of all elementary schools for a series of years is the net result of movements in registers of the respective grades and kinds of special classes. Table XVI shows such movements in the December register for District 22, Manhattan. (See table, page 60.)

To forecast with relative exactness the distribution of a total estimated register for a given month of the budget year it is, therefore, necessary to take into account the movements in the register for the given month in each of the several grades and kinds of special classes. Since the net results of these movements are summarized in the total register for the given month and since the actual average annual increase for a series of years is used as the basis of estimating the total register for the given month, it follows that in attempting to forecast the distribution of the total estimated register among the several grades and kinds of special classes the average annual increase or decrease for the same series of years should be made the basis of estimating the distribution, as was used as the basis of estimating the total register for the given month.

With the average annual increase or decrease in the register of the particular grade or kind of special class in question at hand, the estimate or the distribution is made in the same way as the estimate of the total register for the entire city, namely, this average annual increase or decrease in the register of the particular grade is added to or subtracted from the actual register of the particular grade for the given month of the year preceding the budget year in question; and the sum or the minuend is the estimated register of the particular grade or kind of special class for the given month.

When the average annual increase or decrease for the same series of years is made the basis of estimating the distribution of a total estimated register for a given month, as was used in estimating the total register, then the sum total of the estimated register or estimated distribution among the several grades and kinds of special classes will always equal the total estimated register for the given month. This



is mathematically true; hence, no data need be supplied in support thereof.

There are no data at hand which make it possible to test for the entire city the reliability of the estimated distribution when made as suggested above. This fact is, however, clear, that an estimate of the number of teachers needed which is based on an estimated distribution of the total register among the several grades and kinds of special classes, even if the estimated distribution is only approximately exact, will, as a rule, be a more just and liberal estimate, hence will yield a more liberal allowance of money for the elementary school, than an estimate of the teachers needed which is based on the total estimated register as a whole. To be sure, it is a simple matter to divide the total register, for example, as of May 31, 1912, by the number of classes as of that date and find the average size of all classes, irrespective of grade. The total estimated register, for example, as of May 31, 1913, may then be divided by this average size of class to find the total number of classes, hence the total number of teachers needed to care for the given total estimated register. Such an allowance of teachers rests, however, on the assumption that the given number of teachers will be adequate, *providing the distribution of the register among the several grades and kinds of special classes remains the same*. But, as we have seen in Tables XIV, XV, and XVI, the distribution does not remain the same. Besides, we also know that by reason of the great increase in the rate of promotion within the last few years<sup>1</sup> pupils in larger numbers are being advanced to the upper grades (Table XIV), and in these upper grades more teachers are required, as the schools are conducted in New York, to instruct a given number of pupils than to instruct the same number of pupils in the lower grades (Table XV); moreover, the number of special classes is being rapidly multiplied, and the number of pupils in these special classes instructed per teacher is considerably less than the number instructed per teacher in the regular classes (Table XV).<sup>2</sup> In consequence, an estimate of the number of teachers needed which takes into consideration the changes in the distribution of the register from year to year will, as a rule, be a more just and a more liberal estimate than an estimate which rests on an assumption which is known to be untrue.

3. *Supplementing the Estimated Distribution.*—The policies of the Board of Education are well defined with respect to the classes in the regular grades, that is, the grades 1A-8B; they are also now relatively well fixed with respect to C, D, and E classes; hence, the changes from year to year in the register of the regular grades and of C, D, and E classes are not so very rapid. In the case of special classes, however, such, for example, as classes for the blind, the deaf, crippled children,

<sup>1</sup> See Report, Promotion, Non-Promotion and Part-Time.

<sup>2</sup> There were for example in September, 1911, 176, and in May, 1912, 228 classes for the instruction of physically and mentally defective children, from special reports by the City Superintendent of Schools to the Committee on School Inquiry.

and mentally defective children, there may be radical changes, the number of pupils in such classes depending from year to year on the particular policy of the Board of Education prevailing at the given time. With the estimated register of these special classes, if made as suggested above, would provide for a normal development in the register of such classes. This increase in the opinion of the Board of Education might not be sufficient to enable them to carry out their plans with respect to a given group of children, for example, the mentally defective. Under such conditions the particular estimated register might, as is now practically the case, be supplemented by the Board of Education, the only limitation being that in each instance the extent to which a given estimate is to be supplemented should be indicated and the reasons therefor be given.

4. *Data Needed as Basis of Distribution.*—In the distribution of the grades and kinds of special classes of a total estimated register for a given month, that is, in estimating for the given month the register of each of the grades and kinds of special classes, the method suggested is the same as that suggested for estimating the total register, but the data required to make the two estimates are different. To estimate the register of each of the several grades and kinds of special classes, we need to know the register of each grade and kind of special class by months for a series of past years. While there is no recorded experience to serve as a basis of judgment, it would seem adequate for present purposes to tabulate by months such data for the last three years. If the foregoing plan of estimating the need of teachers should be adopted, such data would, of course, hereafter be tabulated currently.<sup>1</sup>

## VII. Determining the Numbers of Pupils For Whom One Teacher Should Be Provided

In making a budget estimate for the elementary schools it is not only necessary to know the estimated total register and the estimated distribution thereof among the several grades and kinds of special classes, but it is also necessary to know, for each grade and each kind of special class, the number of pupils for whom one teacher should be provided.

1. *Factors Influencing the Number of Pupils Actually Instructed per Teacher.*—It might seem possible to determine for each grade and kind of special class, on theoretical grounds, the number of pupils for whom one teacher should be provided. Having so determined the number of pupils for whom one teacher should be provided, it would be a simple task, in view of a given estimated total register and a given estimated distribution, to determine the number of teachers needed to care

<sup>1</sup> We are aware that the present register, as well as the register of past years includes pupils who are not included in the register we are proposing to be used in estimating the needs of the school. However desirable it might be, it is impossible, at least for some time, to escape using the present register in making the estimates for which budget provisions are requested.

for the estimated register of each grade and kind of special class. There are, however, reasons why it is impossible in a city such as the City of New York to determine for each grade and kind of special class, on theoretical grounds, the number of pupils for whom one teacher should be provided.

(a) Children are not like pegs so that they may be stuck around wherever there happens to be a hole, or like blocks of wood so that the same number may be put in boxes of like size. Children must be taught, as a rule, in the school where they are. In consequence, the number of pupils in a given school and grade may be such as to make it necessary to have a small or a "short" class; similarly, the number may not be large enough to form two classes, but very large for one class, making necessary a large or a "long" class. The particular number of pupils there happens to be in each grade and kind of special class of each of the several schools of the system is, therefore, a material factor in determining the actual number of pupils instructed per teacher.<sup>1</sup>

(b) The classrooms in the new school buildings are, as a rule, standardized, that is, they will accommodate uniformly from 40 to 45 pupils. In the older school buildings the size of classrooms varies materially; there are classrooms with twenty-five sittings and classrooms with as high as seventy sittings; in some old buildings the classrooms are uniformly small, and in other old buildings they are uniformly large. The demand for classrooms makes it necessary, at least in certain buildings, to use every classroom, whether large or small, and there is need, at least at times in certain buildings, to use all the sittings in each room. The difference in the size of classrooms in the several elementary school buildings of the city is, therefore, a material factor in determining the number of pupils actually instructed per teacher.

Table XVII shows for certain schools the differences in the number of seats in certain rooms of the same building and the differences in the number of seats in rooms used for the same grade of pupils in different buildings. (See table, page 64.)

(c) The elementary schools of the City of New York vary in size. There are schools, such as P. S. 10, Queens, with one classroom, and there are schools, such as P. S. 188, Manhattan, with 94 classrooms. In a small school, having but one or two classes in each grade, little can be done, as a rule, to make the classes in the different grades uniform in size. In consequence, in the same school, one teacher may be teaching only thirty pupils, whereas another teacher may be instructing fifty or even sixty and more.<sup>2</sup> In contrast, the large school, having from

<sup>1</sup> As an illustration of the differences in the size of classes in the same grade of different schools and of the differences in the size of classes in the different grades of the same school, compare the register and number of classes, grade for grade, in P. S. 186, Manhattan, as of September 30, 1911, Table IV, p. 30, with the register and number of classes in P. S. 169, Manhattan, as of the same date, Table XVIII. (See insert between pages 66 and 67.)

<sup>2</sup> In P. S. 32, Manhattan, the register of a certain 8A class as of November 30, 1912, was 30, whereas the register of a certain 6A class was 62.

Table XVII—Differences in Seating Capacity of Different Rooms

Grade for Which Used	NUMBER OF SEATS IN GIVEN ROOMS				
	P. S. 52 Manhattan	P. S. 6 Manhattan	P. S. 32 Manhattan	P. S. 45 Manhattan	P. S. 35 Brooklyn
8B.....	40	32	46	27	40
8A.....		43	40	34	37
7B.....	35	55	44	32	35
7A.....		54	52	46	38
6B.....	35	54	46	46	42
6A.....		61	40	31	48
5B.....	40	43	52	36	47
5A.....		55	47	39	33
4B.....	38	54	58	42	33
4A.....	38	54	52	49	47
3B.....	28	52	32	40	54
3A.....	24	59	54	36	38
2B.....	40	60	46	46	58
2A.....		55	54	55	60
1B.....	37	55	39	48	60
1A.....		61	56	55	62

three to six and more classes in the same grade, affords large opportunity to keep the several classes relatively uniform. If there are three small classes, having an actual register of 74 pupils, these three classes can be consolidated into two classes, each having a register of 37. Similarly, if there are three classes, having together a register of 160 pupils, a fourth class can be formed, each class having a register of forty pupils. The varying size of elementary school buildings is, therefore, a material factor in determining the number of pupils actually instructed per teacher.

(d) There have developed in the day elementary schools of the city two kinds of regular classes, full-time classes and part-time classes. Part-time extends at the present time in some schools through the 6B grade, for example, P. S. 40, The Bronx. School authorities not only regard part-time as undesirable, but regard part-time as increasingly serious as it advances from the 1A to the higher grades. Consequently, in schools where there is no part-time and there are available rooms greater freedom is allowed principals with respect to the division of large classes than is allowed in schools having part-time in the first-year grades, the 1A and the 1B, and even greater freedom is allowed in schools having part-time in the first-year grades only than in schools where part-time extends above the first-year grades. The presence of part-time is, therefore, a material factor in determining the number of pupils actually instructed per teacher.

(e) The opinions of principals differ with respect to what the size of a class should be in order to achieve the best educational results, and



even the opinion of the same principal will vary somewhat with the particular pupils and teacher in question. Accordingly, where conditions permit, one principal organizes his or her school with from 30 to 35 pupils per class, whereas another principal in a neighboring school organizes his or her school with from 35 to 40 pupils per class. The personal opinions of principals with respect to proper size of class are, therefore, a material factor in determining the number of pupils actually instructed per teacher.

(f) The public school cannot fix on the number of pupils it will undertake to instruct and refuse to admit pupils in excess of this number. The public school must care in some way or other for all pupils of legal school age who desire to attend. In consequence, if the budget allowance for the support of the schools is small, it may happen that classes will need to be made large, whereas if the budget allowance is liberal it may be that classes will be reduced in size. The given budget allowance may, therefore, be a material factor in determining the number of pupils actually instructed per teacher.

For the foregoing reasons it is, therefore, impractical to attempt to determine on theoretical grounds the number of pupils on the average for whom one teacher should be provided, and, even if the number were theoretically determined, it would doubtless be found that the number actually instructed per teacher would differ materially from the theoretical number fixed on.

2. *Determining the Number of Pupils for Whom One Teacher Should Be Provided.*—For budget purposes it is not, in the last analysis, a question of the number of teachers *in service* to care for a given register and distribution of pupils, but a question of the number that *should have been in service* and that *could have been used* under existing conditions to care for the given register. The only practical way of determining the number of pupils on the average for whom one teacher should be provided is, we believe, to determine for each elementary school of the system the number of teachers by grades and kinds of special classes that were needed and that could have been used, month by month, to care for the given total register and the given distribution of pupils.

Thus, to determine by grades and kinds of special classes the number of pupils on the average for whom one teacher should be provided involves:

(a) A study by months of the conditions in each elementary school of the system, that is, a study of the capacity of the several classrooms, of whether or not there are available rooms in addition to those in use, of whether or not there is part-time, and in what grades there is part-time, if any, etc. For, as we have seen, the actual size of class, hence the number of pupils instructed per teacher, is conditioned by these and other factors.

(b) There is also involved, in determining the number of pupils

on the average for whom one teacher should be provided, definite knowledge, by months and by grades and kinds of special classes, of the number of classes and the size of each class in each elementary school, to the end that, in view of the existing conditions and in view of the standard size of class, as fixed by the Board of Education, and of their regulations with respect to combining small classes and with respect to dividing large classes, the actual number of teachers needed and that could be used to care for the given register and given distribution of pupils in each grade and kind of special class may be determined. In some schools and in certain grades and kinds of special classes it may be found, for example, that the number of teachers in service to care for the given register and distribution of pupils is excessive, whereas in other schools it may be found that the number of teachers in service is not sufficient to care for the given register, even though the conditions are such as to make possible the use of additional teachers.

Table XVIII shows by grades and kinds of special classes for P. S. 169, Manhattan, the register and the increase or decrease month to month, also the number of classes and increase or decrease month to month, for each of the months, with the exception of January and June, for the school year 1910-1911. (See insert between pages 66 and 67.)

It will be observed that the total register of a school is not static, that is, remains the same from month to month throughout the school year, nor is the distribution of a total register static; the particular register of each of the several grades and kinds of special classes changes from month to month. It will also be noted that the total register of a school at the end of each month is the resultant of both increases and decreases in the register of particular grades. In a month, for example, such as October, in which there was a slight increase in P. S. 169 in total register over September, there was a decrease in the register of a number of grades; similarly in a month such as November, in which there was a decrease in total register from October, the register of a number of grades increased. At times the size of the classes in the several grades is such that a slight decrease or increase in the register of the given grade in no wise affects the number of teachers needed, for example, the changes from November 30th to December 31st; at other times, however, any considerable increase or decrease in the register of given grades does affect the number of teachers required, for example, the changes from March 31st to April 30th.

What is true of P. S. 169 with respect to changes in the register from month to month in the several grades and kinds of special classes and with respect to the changes from month to month in the teachers actually needed is true, within limits, of each elementary school of the system. In consequence, it is not sufficient for budget purposes to determine by grades and kinds of special classes for one month of the school year the number of pupils on the average under existing conditions one

er and

P. S. 169. MAN.	SMP	
Grades	Regi ter	Regis- ter
8B.....	6	70
8A.....	8	100
7B.....	11	95
7A.....	13	93
6B.....	10	106
6A.....	9	109
5B.....	9	101
5A.....	9	92
4B.....	13	110
4A.....	13	126
3B.....	12	122
3A.....	12	133
2B.....	11	127
2A.....	13	122
1B.....	12	161
1A.....	14	97
Kg.....	7	79
D.....	3	30
Total.....	1,941,873	



teacher can instruct, but this must be done each month of the school year, with the possible exceptions of January and June.

With the register by months and by grades and kinds of special classes of each elementary school of the system in hand, also the number of teachers by months and by grades and kinds of special classes, it is easy to combine, on the one hand, by months and by grades and kinds of special classes, the register of the several elementary schools, and to combine, on the other hand, by months and by grades and kinds of special classes, the number of teachers that were in service and could have been used under existing conditions in all elementary schools. From these data it is an easy task to determine by months and by grades and kinds of special classes the number of pupils on the average, under existing conditions, one teacher can economically and efficiently instruct, hence to determine the number of pupils by months and by grades and kinds of special classes for whom on the average, under existing conditions, one teacher should be provided.

The use of such a number as the divisor to determine the number of teachers for whom, in view of a given estimated register, budget provisions should be made rests, of course, on the assumption that the foregoing factors (see pp. 63-65) which affect the number of pupils one teacher actually instructs change little from year to year. There is nothing, however, in this assumption to be feared. There is no reason to suppose that the distribution of pupils will be such that it will be necessary, taking the city as a whole, to organize relatively more "short" classes or more "long" classes one year than another. Nor is there any reason to suppose that there will be such changes in a single year in the size of classrooms, the size of buildings, in part-time, etc., as to affect materially the number of pupils one teacher can instruct. While we admit the foregoing assumption, we nevertheless believe that, to determine the number of teachers for whom budget provisions should be made on the basis of the number of pupils in the preceding year experience shows one teacher, under existing conditions, can economically and efficiently instruct, is a practical method of procedure.

3. *Regulations Needed on Size of Class.*—The regulations of the Board of Education on the size of class read as follows: "In no kindergarten class shall the register (number of children) exceed fifty, except as in this section otherwise provided; and in no class in elementary schools shall the number on roll exceed fifty without the permission of the Board of Superintendents."<sup>1</sup>

These regulations should be expanded and made more definite in order to afford the proper guidance to principals, to district superintendents, and to associate superintendents. It is also essential that this be done, if the foregoing plan of determining, by months and by grades and kinds of special classes, the number of pupils for whom on the average one teacher should be provided is to be adopted; otherwise there

<sup>1</sup> By-Laws of the Board of Education, Section 45, Subdivision 7, p. 59.

might be a disagreement between fiscal and educational authorities on the number of teachers there should be in a given school at a given time to care for a given register. To the end that school officials may have the proper guidance, that there may be uniformity in administration, with respect to the size of class, in so far as this is possible with the varying conditions in the different schools, and that there may be at hand the basis of carrying the foregoing plan into effect, we recommend that the Board of Education be requested to formulate regulations with respect to:

(a) The standard size of class in all elementary schools in each grade and kind of special class, such standards to be followed wherever conditions will permit.

(b) The combination of small classes—the maximum size after combination, in schools having no part-time: (1) in schools having less than three classes in the same grade, and (2) in schools having three or more classes in the same grade.

(c) The division of large classes—minimum size after division, in schools having no part-time and available rooms: (1) in schools having less than three classes in the same grade, and (2) in schools having three or more classes in the same grade.

(d) The combination of small classes—the maximum size after combination, in schools having part-time: (1) in schools having less than three classes in the same grade and having part-time in the first year grades only, in the first and second year grades only, in the first, second, and third year grades only, and in the first, second, third, and fourth year grades only; and (2) in schools having three or more classes in the same grade and having part-time in the first year grades only, in the first and second year grades only, in the first, second, and third year grades only, and in the first, second, third and fourth year grades only.

(e) The division of large classes—minimum size after division, in schools having part-time: (1) in schools having less than three classes in the same grade and having part-time in the first year grades only, the first and second year grades only, in the first, second, and third year grades only, and in the first, second, third, and fourth year grades only; and (2) in schools having three or more classes in the same grade and having part-time in the first year grades only, in the first and second year grades only, in the first, second, and third year grades only, and in the first, second, third, and fourth year grades only.

(f) The period beyond which small classes should not be combined: (1) in schools having no part-time, and (2) in schools having part-time.

(g) The period beyond which large classes should not be divided: (1) in schools having no part-time and available rooms, and (2) in schools having part-time.

With such regulations in hand, it would be possible to determine, month by month, for each elementary school in the system, the number of teachers there should have been in a given school to care for the given

register; also, should there be less teachers or should there be more teachers in the given school than the number prescribed by the regulations governing the size of class, the consolidation of small classes and the division of large classes, the reasons for the deviation from the regulations could be noted and made a matter of record.

4. *Data Needed to Carry Out Method Proposed.*—The proposed method of determining the number of pupils on the average for whom one teacher should be provided requires a study, month by month, of certain physical conditions, such as available rooms, etc., in each of the elementary schools of the system. The data implied in such a study are now supplied by the monthly report made by the principal of each school and sent to the office of the City Superintendent of Schools, hence are at hand and could be used should the foregoing method be adopted.

The monthly report made by the principal of each school and sent to the office of the City Superintendent of Schools shows also the number of pupils on the register of each class at the end of the month. These data are valuable, but for the administrative and budgetary control they are not conveniently arranged. It is impossible to determine from them at a glance the small classes in a given grade which might probably have been combined, or the large classes in a given grade which might probably have been divided, and there is no place to record the reason why given small classes were not consolidated or why given large classes were not divided.

To facilitate the work of administration in so far as this has to do with class organization and to supply, month by month, the needed budgetary data on the classes of each elementary school of the system, we would recommend the adoption of the following blank. (See insert between pages 70 and 71.)

The blank, as drawn, is for use in organizing the data to be collected month by month from each elementary school. Column "a" designates the grade and kind of special class; column "b" calls for the *register for the month*<sup>1</sup> of all classes of the same grade or kind of special class; column "c" for the number of classes at the end of the month in each grade and kind of special class; columns "d," "e," "f," "g," "h," and "i" call for the *register for the month* and the number of classes of the several sizes less than 30, 30 and less than 35, 35 and less than 45, etc. Column "j" calls for the specific reason why certain small classes of a given grade or kind of special class were not consolidated and the specific reason why certain large classes were not divided; column "k" supplies space to indicate, after due investigation, the number of classes that should have been formed under existing conditions to care economically and efficiently for the given register for the month.

With the data called for in the foregoing blank in hand soon after the end of each school month for each elementary school of the system, the official having in charge the organization of classes would be able

<sup>1</sup> See definition, pp. 24 and 25.

to determine at a glance for each school whether or not it was necessary to institute inquiry why certain small classes had not been consolidated and why certain large classes had not been divided. On the other hand, the fiscal authorities would have ready to hand, month by month, the means of determining the number of teachers actually needed and that could have been used under existing conditions to care for the given register. In a word, the fiscal authorities would have ready to hand the data necessary to verify, month by month, the actual need of teachers in each elementary school of the system.

For purposes of administration and for purposes of information, it would be well to have the data collected for each school with respect to the number and the register of the classes of each size tabulated for the city as a whole. For purely budgetary purposes, however, it would only be necessary to tabulate, month by month, and by grades and kinds of special classes, the register, the number of classes that were organized, and the number of classes that should have been formed under existing conditions to care for the given register economically and efficiently.

The data called for in the foregoing blank might be made the subject of a separate monthly report, to be filled out by the principal of each school and sent to the office of the City Superintendent of Schools. It would, however, be preferable to include in the present monthly report of the principal, as suggested above, the *register for the month* of each class, and then to have all the work of collecting the data for each school, called for in the foregoing blank, done at the office of the City Superintendent of Schools. To collect the requested data from the several monthly reports, to make the proper entries at the end of the month why certain small classes had not been combined, and why certain large classes had not been divided, and to tabulate, month by month, and by grades and kinds of special classes for the city as a whole, the register and the number of classes that should have been organized, aside from thereby giving the associate superintendent having charge of the organization of classes much needed assistance, there would be required not to exceed two competent clerks.<sup>1</sup>

With the tabulation by months and by grades and kinds of special classes of the register for the month of all elementary schools and of the number of classes there should have been to care under existing conditions for the given register, it is an easy task to determine by months and by grades and kinds of special classes the number of pupils for whom on the average one teacher should be provided. There is involved merely the division of the given register for the month; for example, the 8B by the number of 8B classes there should have been to care for the given 8B register, the quotient is the number of 8B pupils for whom on the average one 8B teacher should be provided. Similarly for all

<sup>1</sup> This estimate is based on the time required to collect and tabulate similar data for all the schools of Dist. 22, Manhattan.



Total Number of Classes on Part-Time  
(Exclusive of Shops and at End of Month.....  
Highest Grade of Part-Time Class.....

P. S. NUMBER

a Regular Grades	b Register for Month	c Number of Classes	d	
			e Reason for Not Combining Small Classes and Not Dividing Large Classes	f Number of Classes that Should Have Been Formed
8B.....	.....	.....	.....	.....
8A.....	.....	.....	.....	.....
7B.....	.....	.....	.....	.....
7A.....	.....	.....	.....	.....
6B.....	.....	.....	.....	.....
6A.....	.....	.....	.....	.....
5B.....	.....	.....	.....	.....
5A.....	.....	.....	.....	.....
4B.....	.....	.....	.....	.....
4A.....	.....	.....	.....	.....
3B.....	.....	.....	.....	.....
3A.....	.....	.....	.....	.....
2B.....	.....	.....	.....	.....
2A.....	.....	.....	.....	.....
1B.....	.....	.....	.....	.....
1A.....	.....	.....	.....	.....
Total.....	.....	.....	.....	.....
Kindergarten.....	.....	.....	.....	.....
g C, D, and E Classes	h Register for Month	i Number of Classes	j Reason for Not Combining Small Classes and Not Dividing Large Classes	k Number of Classes that Should Have Been Formed
C Classes.....	.....	.....	.....	.....
D Classes.....	.....	.....	.....	.....
E Classes.....	.....	.....	.....	.....
Total.....	.....	.....	.....	.....
l Classes for Defectives	m Register for Month	n Number of Classes	o Reason for Not Combining Small Classes and Not Dividing Large Classes	p Number of Classes that Should Have Been Formed
Blind.....	.....	.....	.....	.....
Deaf.....	.....	.....	.....	.....
Ungraded.....	.....	.....	.....	.....
Anæmic.....	.....	.....	.....	.....
Tubercular.....	.....	.....	.....	.....
Crippled.....	.....	.....	.....	.....
Total.....	.....	.....	.....	.....

a. Register for Mth.  
b. Register for M  
c. Number of Cl



other grades and kinds of special classes for the several months of the school year.

### **VIII. Estimating the Total Number of Teachers Needed**

With the estimated register by months and by grades and kinds of special classes, estimated as suggested in V and VI of this report, in hand, and with the number of pupils by months and by grades and kinds of special classes one teacher can instruct, determined as suggested in VII of this report, in hand, it is merely a problem in division to estimate by months and by grades and kinds of special classes the number of classes that should be formed, and hence the number of teachers for whom budget provisions should be requested. The estimated register of a given grade for the month in question is divided by the number of pupils of the given grade which experience of the corresponding month of the preceding year shows one teacher, under existing conditions, can economically and efficiently instruct. The number of classes required to care for the estimated register of each of the grades and kinds of special classes is the estimated total number of teachers needed in all elementary schools of the system for the month in question.

For convenience, by reason of the salary schedules, after the separate estimates have been made and recorded, the teachers needed may well be grouped according as they will teach in the 8B, 7A-8A, 1A-6B, kindergarten, or in one or the other of the several kinds of special classes.

### **IX. Estimating the Number of New Teachers Needed**

With the estimate by months and by grades and kinds of special classes of the number of teachers needed in hand, to estimate the number of new teachers of each of the several kinds to be employed in each month of the budget year in question, we need to know the number of each kind of teacher in service, including vacancies as of December 31st, that is, the number teaching 8B classes, 7A-8A classes, 1A-6B classes, kindergarten classes, ungraded classes, etc. As the budget estimate is now made, to ascertain the number of teachers of each kind in service, including vacancies as of December 31st, it is necessary to know the number of teachers in service as of May 31st prior to the given budget year, also the number of vacancies in each grade and kind of special class existing as of May 31st, and the number of teachers of each kind that will be appointed each month between May 31st and December 31st.

With the estimate of the number of teachers of each of the several kinds needed in a given month of the budget year, for example, January, together with the knowledge of the number of teachers of each kind in service, including vacancies December 31st, in hand, the number of new teachers of each kind to be appointed <sup>1</sup> in January is found by subtract-

<sup>1</sup> See Budget Estimate of Board of Education for 1913, Schedules No. 2, No. 66, No. 67, and No. 68.

ing the number of each kind of teacher in service, including vacancies December 31st, from the number of the corresponding kind needed in January. Similarly, with the number of teachers of each kind in service, including vacancies, January 31st, together with knowledge of the number of each kind needed in February in hand, the number of each kind to be appointed in February is found by subtracting the number of each kind in service, including vacancies, January 31st, from the number of the corresponding kind needed in February, and so on for each of the several months of the budget year in question.

To carry the foregoing method of determining the number of new teachers to be appointed into effect it will be necessary to make certain changes in the budget estimate as now submitted. In the budget estimate as now submitted the elementary teachers as of May 31st and the vacancies existing as of that date are classified practically according to salary schedules only, and the same is true of the teachers to be appointed during the given budget year.<sup>1</sup> If the foregoing method of determining the number of new teachers to be added is adopted, it will be necessary hereafter in the budget estimate to classify the teachers in service May 31st and the vacancies existing as of that date, and all teachers to be appointed monthly thereafter both according to kind of class to be taught, 8B class, 1A class, kindergarten, ungraded class, etc., and according to salary schedule.

For convenience, by reason of the salary schedules, after the number of each kind of new teacher is estimated and recorded, the new teachers needed may well be grouped according as they will teach in the 8B, 7A-8A, 1A-6B, kindergarten, or in one or the other of the several kinds of special classes.

### X. Determining the Length of Service

The total number of classes increases almost invariably, as we have seen (Table IX, p. 42), from month to month during the budget year. It is therefore necessary to provide salaries in a given budget to care for the entire number of classes as of December 31st, hence to provide in the given budget salaries for an entire year for all teachers in service, including vacancies as of December 31st. In addition to providing for the entire year for all classes as of December 31st, it is necessary to provide also for the entire year for the increase in classes of January over December, to provide, besides, for eleven months for the increase in classes of February over January, for ten months for the increase in classes of March over February, and so on for the remaining months of the given budget year.

For convenience, by reason of the salary schedules, when the length of service of each kind of new teacher is fixed and record made thereof,

<sup>1</sup> See Budget Estimate of the Board of Education for 1913, Schedules No. 2, 66, 67, and 68.

the number of new teachers to be added may well be grouped according as they will teach in the 8B, 7A-8A, 1A-6B, kindergarten, or in one or the other of the several kinds of special classes, and the average length of service of the new teachers in each group determined.

### **XI. Conclusions and Recommendations**

In discussing the question, Estimating for Budget Purposes the Number of Teachers Needed in the Elementary Schools, it has not only seemed necessary but wise to take into account certain proposals made by persons in authority, such, for example, as the use of average daily attendance as the basis of estimating the need of the schools. Considerations of this character have added much to the length and to the complexity of this report. But the length and the complexity of the report should not be confused with the simplicity of the plan presented.

The main features of the proposed method of estimating the need of elementary school teachers for budget purposes, the adoption of which we recommend, are:

1. That a register including only pupils, exclusive of transfers, who have been in attendance at least one entire day during the month be made the basis of estimating the needs of the elementary schools.

2. That the entire elementary school system be made the unit in estimating the register.

3. That the estimate of the register for the entire system as a whole be based on the actual average annual increase or decrease in the register of all elementary schools for a series of past years, and that a separate estimate be made for each month of the school year.

4. That the estimated register for the system as a whole for a given month be distributed among the several grades and kinds of special classes on the basis of the average annual increase or decrease in the grades in question for the same series of past years as were employed in estimating the given total register for the entire system.

5. That the number of pupils for whom on the average one teacher is to be provided be determined, by months and by grades and kinds of special classes, from a study of the conditions in each elementary school and from the number of pupils it is found one teacher, under existing conditions, can economically and efficiently instruct.

The entire system is thus made the unit in estimating the total register for which budget provisions are to be requested, whereas the individual school is made the unit in determining the number of pupils for whom one teacher should be provided.

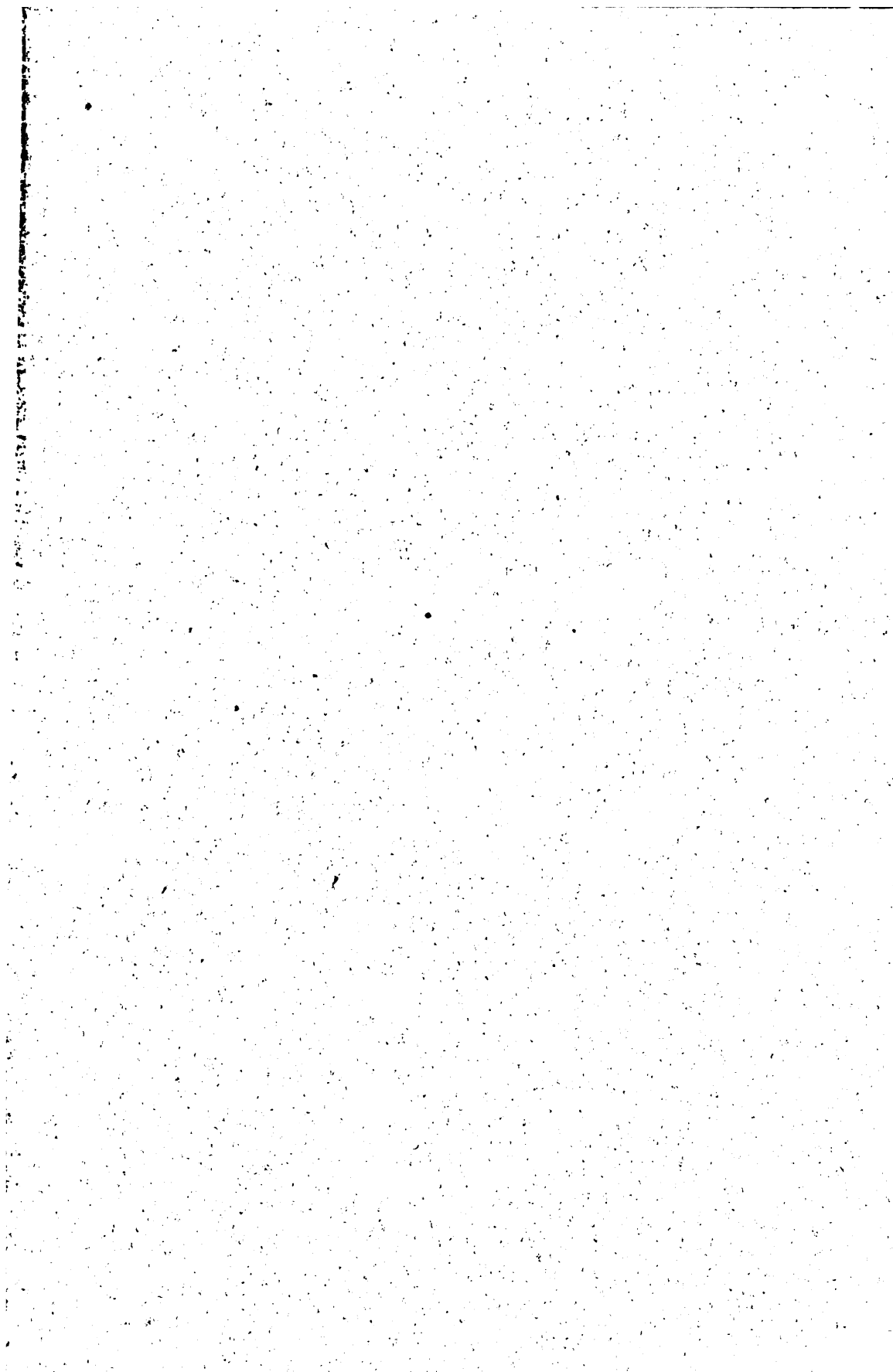
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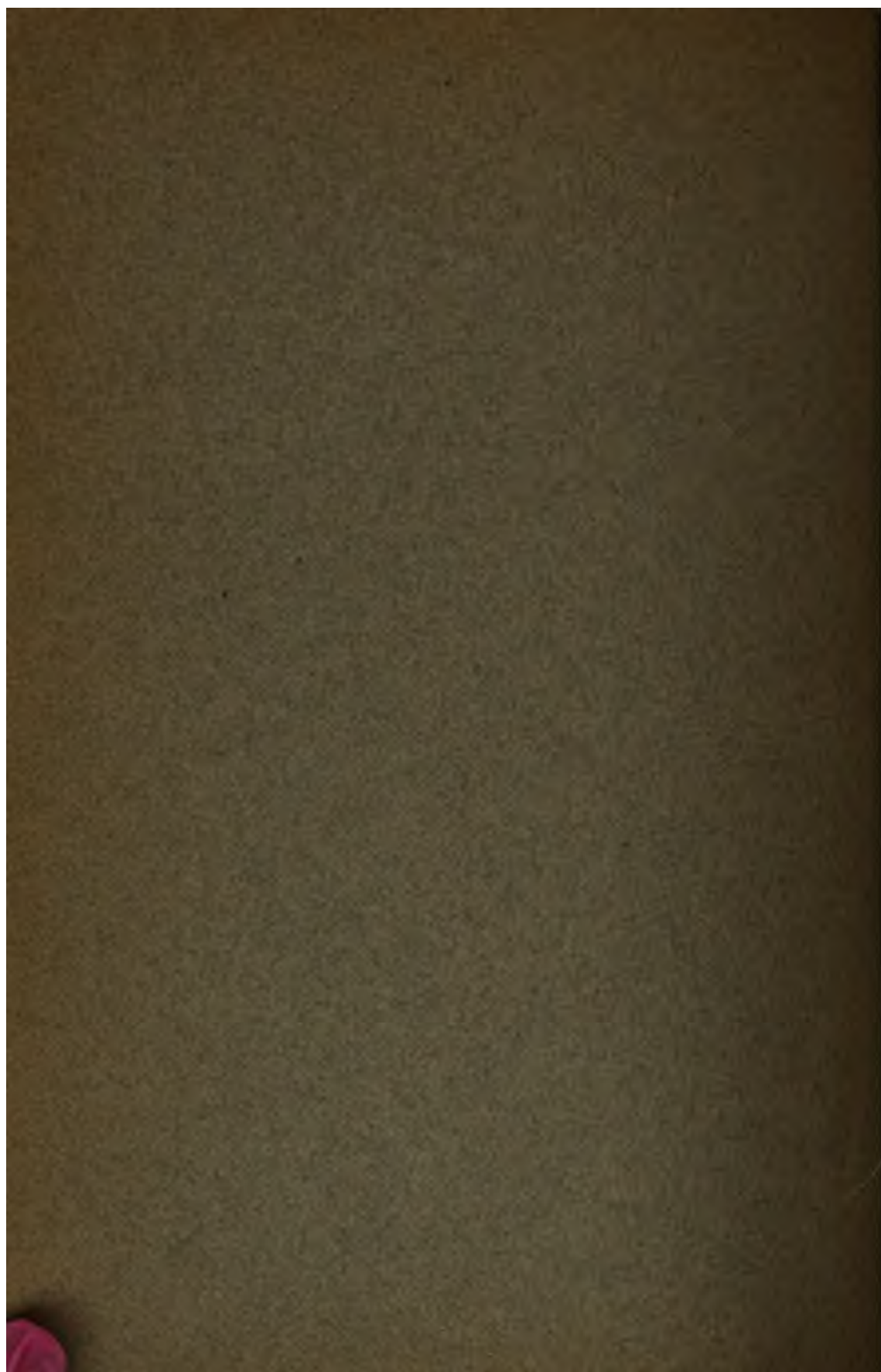
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II-171

## INTERIM REPORT

# Committee on School Inquiry Board of Estimate and Apportionment

### *Embracing*

1. Letter of Transmittal
2. Excerpt from "The Report as a Whole"

By PROFESSOR PAUL H. HANUS

3. Report on Intermediate Schools

By FRANK P. BACHMAN

### *Committee on School Inquiry*

JOHN PURROY MITCHEL

*President of the Board of Aldermen*

WILLIAM A. PRENDERGAST

*Comptroller*

CYRUS C. MILLER

*President of the Borough of the Bronx*

CITY OF NEW YORK

1911-1912



FEBRUARY 26, 1913.

*To the Honorable, The Board of Estimate and Apportionment:*

GENTLEMEN:—The Committee on School Inquiry herewith transmits to your Board a section of the report upon the educational aspects of the school inquiry, being a monograph by Dr. Frank P. Bachman, Assistant Superintendent of Schools, Cleveland, Ohio, upon "Intermediate Schools." Prefixed thereto is printed the section of "The Report as a Whole," prepared by Prof. Hanus, which deals with the subject matter of the accompanying monograph.

The monograph transmitted was first sent to the printer by Prof. Hanus in the form of manuscript on July 1, 1912, was transmitted by the printer to the writer and Prof. Hanus for revision on July 9, 1912. Since that time, the monograph has been undergoing revision by the writer and by Prof. Hanus and correction by the printer, and was received by your Committee, with the final approval of the writer and of Prof. Hanus, on January 7, 1913.

Respectfully submitted,

JOHN PURROY MITCHEL,  
*President Board of Aldermen.*

WM. A. PRENDERGAST,  
*Comptroller.*

CYRUS C. MILLER,  
*President Borough of The Bronx.*  
Committee on School Inquiry.



EXCERPT FROM

## **"THE REPORT AS A WHOLE"**

BY

PROFESSOR PAUL H. HANUS

### **(4) Intermediate Schools**

Intermediate Schools in New York City are schools in which seventh and eighth-year pupils (grades 7A to 8B) are segregated. There are three such schools—all in Manhattan. They were organized to relieve congestion—two of them in 1905, and one in 1907; and, although they at once proved their value for this purpose, none have been organized since. Meanwhile, congestion throughout the city has greatly increased. In spite of the service rendered by the intermediate schools, their value has been seriously questioned. Accordingly, we have studied them from three points of view: Their educational efficiency as measured by their power to hold pupils in school compared with schools having all grades, and the relative progress of pupils in the two kinds of schools, the relative cost of the two kinds of schools; and the peculiar opportunities the intermediate schools offer to adapt instruction and management to the varying needs of the pupils.

In this comparative study we have used data collected from the three intermediate schools and certain neighboring or contributing schools. In the time at our disposal it was possible for us to collect and use only data pertaining to the February-June term, 1911; hence our conclusions cannot be regarded as final. Such study, however, illustrates the method which would yield approximately final conclusions if applied to the data for a number of years.

Our study of the data used leads to the following provisional conclusions: Fewer pupils leave the 6B classes in schools having only 1A to 6B grades by .43 of 1 per cent. than leave the 6B classes in schools having all grades; fewer pupils leave the seventh and eighth-year classes of intermediate schools by 1.75 per cent. than leave the seventh and eighth-year classes of schools having all grades; more seventh and eighth-year pupils are promoted in intermediate schools by 2.04 per cent. than are promoted in schools having all grades; thirteen times as many

## EDUCATIONAL INVESTIGATION

terms of work are lost by seventh and eighth-year pupils in schools having all grades as in intermediate schools. On the other hand, more 6B promoted pupils by .67 of 1 per cent. fail to enter the 7A grade of intermediate schools than when they can enter that grade in their home schools. Thus, on all the counts save the last, the intermediate schools show distinct superiority over the schools having all grades; and on this last count the difference is slight.

The difference in cost between the two kinds of schools depends almost entirely on the three following items; the number of school rooms, the number of teachers, and the equipment and supplies needed for instruction of a given number of 7A-8B pupils. Comparing the intermediate schools with schools having all grades, employing substantially the same schools as before, in respect to these three items, we find: that 5.31 per cent. fewer classrooms; 27.31 per cent. fewer shops (or 19.53 per cent., if the shops are used also by other than 7A-8B pupils); 17.17 per cent. fewer cooking rooms (or 6.3 per cent., if the cooking rooms are used also by other than 7A-8B pupils; 18.16 per cent. fewer gymnasiums are required to instruct a given number of 7A-8B pupils in the intermediate schools than in schools having all grades. Combining these results, it appears that the intermediate schools require fewer rooms for the instruction of a given number of pupils by 8.11 per cent. or at least 6.88 per cent. Using these differences and the actual number of rooms used to instruct a given number of 7A-8B pupils in schools having all grades, it appears that, if 20,000 7A-8B pupils could be segregated in intermediate schools, the difference in cost of regular classrooms, shops, and gymnasiums would be not less than \$100,000, together with an annual difference in favor of intermediate schools of 6.88 per cent, in upkeep and operating expenses.

We find also that 5.13 per cent. fewer regular class teachers, 8.07 per cent. fewer manual training teachers, and 8.07 per cent. fewer cooking teachers—the three kinds of teachers employed—are required to instruct a given number of pupils in intermediate schools than in schools having all grades. Combining these results, we find that the intermediate schools require fewer teachers than schools having all grades by 5.36 per cent. As before, this difference represents a difference in annual cost of not less than \$35,000 in favor of intermediate schools.

It is evident that, although there would be no difference in the amount of supplies used which are directly consumed by the pupils (such as pens, paper, pencils, ink) in intermediate schools and in schools having all grades, there would be a saving in equipment of a more or less permanent sort (maps, globes, scientific apparatus, gymnasium, cooking room and shop equipment) in intermediate schools, because fewer classrooms, shops, cooking rooms, and gymnasiums are required. Data for



## THE REPORT AS A WHOLE

the amount spent for this equipment were not available to us; but it is clear that the amount would be a considerable sum.

The foregoing considerations pertain only to the intermediate schools as now organized and conducted. Such schools offer, however, excellent opportunities to render a service far beyond their present usefulness. They afford, as already said, an unusually good opportunity to adapt instruction during the last two years of the elementary school to individual and social needs through differentiated courses of study. The pupils of an intermediate school have reached the age when they are passing through the stage of later childhood and early youth. The physical and mental changes of early adolescence, and the dawning interest in social responsibilities, demand much more careful consideration than they usually receive. The segregation of such pupils in a separate school brings all the special problems of their education into prominence. Consequently the teachers of such schools may, under wise guidance, develop peculiar skill in dealing with them. Such problems are the appropriate differentiation of courses of study to meet individual and local needs; segregation of the sexes, with appropriate modification of teaching and management for each sex; grouping the pupils in accordance with varying abilities, health, industry, ambitions, and home conditions; articulation of the different courses of study, with high schools and with vocational schools; vocational guidance; organizations of pupils for self-government, athletics, club work, social activities; in general, problems connected with the larger freedom appropriate to the age of the pupils, through which they may exercise and develop the insight and self-direction that will make school life real—that part of their lives that makes all the rest of their lives now and later more significant and valuable.

Accordingly, we recommend that immediate studies be made of localities where conditions seem favorable to the establishment of intermediate schools, and that such schools be established where conditions are found to be favorable; that when established such schools be so planned and conducted as not only to serve their present purpose, but also to aim at the fuller realization of the educational opportunities they may afford as outlined in the report; that pains be taken to maintain cooperating relations between contributing schools and intermediate schools on the one hand, and effective articulation between intermediate schools and high schools and vocational schools on the other; that the peculiar opportunity to develop systematic vocational guidance be fully utilized; and, finally, that the Bureau of Investigation and Appraisal be charged with the duty of making the investigations concerning the establishment of intermediate schools, and of their efficiency and economy when established.



REPORT ON  
EDUCATIONAL ASPECTS OF THE  
PUBLIC SCHOOL SYSTEM

OF THE CITY OF NEW YORK

TO THE

COMMITTEE ON SCHOOL INQUIRY  
OF THE BOARD OF ESTIMATE  
AND APPORTIONMENT

PART II

*Subdivision I*

*Elementary Schools*

SECTION F.—PROBLEMS IN ELEMENTARY SCHOOL ORGANIZATION  
AND ADMINISTRATION

I. Intermediate Schools

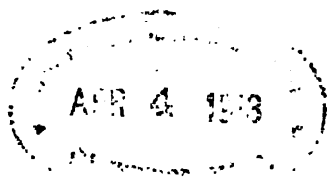
BY

FRANK P. BACHMAN, PH.D.

Formerly Assistant Superintendent of Schools, Cleveland, Ohio

CITY OF NEW YORK

1911-1912



Prof. W. L. H. H. H. H.,  
Cambridge.

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# THE INTERMEDIATE SCHOOL

## EDUCATIONAL AND ECONOMIC EFFICIENCY

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### Introductory

An intermediate school in The City of New York is an elementary school which receives only pupils promoted from the 6B grade, and in which the instruction is restricted to the 7th and 8th years of the elementary school course of study.

There are three such schools in Greater New York, all in Manhattan: Public School Number 24, opened in 1905; 62, opened in 1905; and 159, opened in 1907.<sup>1</sup> These schools were organized to relieve congestion. The 7th and 8th year classes in several neighboring buildings were small, and, by bringing these pupils into one school, it was possible to set free a number of rooms for the use of children of the lower grades. The organization of these intermediate schools at once made clear the worth of this kind of school as a means of relieving congestion, also the economy of such schools in caring for 7th and 8th year pupils, as compared with schools having all grades. The amount of congestion is steadily increasing—the number of pupils on part time having increased from 69,035, September 30, 1907, to 79,338, September 30, 1911,<sup>2</sup> but no new intermediate schools have been established.

Our study of the intermediate schools now in operation will not only show that the intermediate school, apart from its serviceableness in relieving congestion, affords opportunity for economy, but will show besides that it affords peculiar opportunities to adapt the education of 7th and 8th year pupils to their varying needs. Our investigation accordingly comprises (1) a study of the educational efficiency of the intermediate school; (2) a study of its economy; and (3) a review of the peculiar opportunities it affords for adapting the instruction to the varying needs of 7th and 8th year pupils.

### A—Educational Efficiency of the Intermediate School

The City Superintendent of Schools records the establishment of intermediate schools as one of the achievements since consolidation. Both the City Superintendent of Schools and the Board of Education are favorable to intermediate schools and to increasing the number of

<sup>1</sup> Public school number 159 has classes below the 7A grade. It is, however, officially recognized as an intermediate school.

<sup>2</sup> Annual report of the City Superintendent of Schools, 1907, and special report made to the Committee on School Inquiry.

them. There are, however, Associate Superintendents, District Superintendents and Principals who are unfavorable and who express the opinion :

(1) That, when the 7th and 8th grades are removed from a school, in order to organize an intermediate school, a larger per cent. of pupils leave the 6B grade without completing it in schools having only 1A-6B grades, than leave the 6B grade in schools having all grades.

(2) That a larger per cent. of pupils promoted from the 6B grade fail to enter the 7A grade when they must go to an intermediate school, than fail to enter the 7A grade when they can advance to this grade in their home school.

(3) That a larger per cent. of 7th and 8th year pupils leave the 7th and 8th grades without completing these grades in intermediate schools than leave these grades in schools having all grades.

No data have ever been collected by the Board of Education on these points.

#### **Number of pupils leaving the 6B grade without completing this grade**

Do a larger per cent. of pupils leave the 6B grade without completing it in schools having only 1A-6B grades than leave this grade in schools having all grades?

A final answer to this question would involve collecting data for a number of terms on children leaving 6B classes in schools having only 1A-6B grades, and on children leaving the same classes in schools having all grades. With the time at our disposal it was impossible to do this. We have, however, collected such data for the February-June term of 1911, not only for the 6B, but also for the 5B and 6A, grades. See Table I.<sup>1</sup>

Table I shows, for the February-June term of 1911, the enrollment<sup>2</sup> in the 5B, 6A, and 6B grades, and the number of pupils who left<sup>3</sup> these grades in schools having all grades (1A-8B); and also, by grades and for the same schools, the per cent. of the enrollment leaving. The same facts are also shown for neighboring schools having 1A-6B grades.

<sup>1</sup> The schools having all grades (1A-8B) compared in this report with intermediate schools are attended by about the same type of pupils as attend the intermediate schools, hence the cost of operation and the educational results achieved in the two kinds of schools should be about the same.

The data in all the tables of this study, unless it is otherwise stated, were taken from schools located in the same districts with intermediate schools 24, 159, and 62, or located in districts contiguous to these intermediate schools. Also, the data collected are from all the schools in the given districts of the particular kind under discussion, that is, from all the schools in the given districts having only 1A-6B grades, from all the schools in the given districts having all grades (1A-8B), and from the three intermediate schools.

<sup>2</sup> Enrollment, as used here and throughout this study, includes all pupils, exclusive of transfers, on the register during the term.

<sup>3</sup> Leaving, as used here and throughout this study, includes all pupils, exclusive of transfers, who left school during the term.



Table I—Pupils Leaving Schools Having All Grades (1A-8B)

Schools	Dis- tricts	5B Grade			6A Grade			6B Grade			Grand Total		
		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
72	17	Enrollment...	144	144	...	165	165	...	170	170	...	479	479
		Leaving...	7	7	...	16	16	...	16	16	...	39	39
83	17	Enrollment...	...	441	...	358	358	...	282	282	...	1,081	1,081
		Leaving...	21	21	...	45	45	...	30	30	...	96	96
168	17	Enrollment...	...	202	...	308	308	...	265	265	...	775	775
		Leaving...	10	10	...	43	43	...	32	32	...	85	85
171	17	Enrollment...	...	198	...	119	119	...	201	201	...	518	518
		Leaving...	12	12	...	9	9	...	15	15	...	36	36
68a	21	Enrollment...	...	76	...	63	63	...	88	88	...	227	227
		Leaving...	7	7	...	5	5	...	10	10	...	22	22
90	21	Enrollment...	...	118	...	170	170	...	144	144	...	432	432
		Leaving...	7	7	...	14	14	...	16	16	...	37	37
119	21	Enrollment...	...	174	...	170	170	...	134	134	...	478	478
		Leaving...	19	19	...	17	17	...	9	9	...	45	45
22	4	Enrollment...	...	137	...	114	114	...	137	137	...	388	388
		Leaving...	4	4	...	14	14	...	6	6	...	24	24
31	4	Enrollment...	...	102	...	89	89	...	74	74	...	265	265
		Leaving...	1	1	...	6	6	...	9	9	...	16	16
147	4	Enrollment...	...	192	...	50	50	...	55	55	...	307	307
		Leaving...	3	3	...	1	1	...	2	2	...	21	21
110	4	Enrollment...	...	180	...	77	77	...	86	86	...	72	72
		Leaving...	1	1	...	4	4	...	8	8	...	303	303
34	3	Enrollment...	...	123	...	104	104	...	186	186	...	5	5
		Leaving...	5	5	...	2	2	...	12	12	...	413	413
7	2	Enrollment...	...	79	...	81	81	...	73	73	...	19	19
		Leaving...	3	3	...	2	2	...	8	8	...	121	121
		Leaving...	2	2	...	4	4	...	1	1	...	7	7
Total		Enrollment...	1,119	2,166	889	1,139	2,028	967	1,053	2,020	2,975	3,239	6,214
		Leaving...	55	118	80	110	190	79	103	182	214	276	490
Per cent. of enrollment leaving...		4.92	6.02	5.45	9.00	9.66	9.37	8.17	9.78	9.01	7.19	8.52	7.88

## Pupils Leaving Schools Having 1A-6B Grades

Schools	Dis- tricts	5B Grade			6A Grade			6B Grade			Grand Total		
		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
101	17	Enrollment...	104	104	...	96	96	...	50	50	...	250	250
		Leaving...	3	3	...	1	1	...	4	4	...	8	8
57	20	Enrollment...	207	207	...	211	211	...	165	165	...	583	583
		Leaving...	15	15	...	17	17	...	9	9	...	41	41
78	20	Enrollment...	151	151	...	227	227	...	106	106	...	484	484
		Leaving...	19	19	...	15	15	...	11	11	...	45	45
103	20	Enrollment...	104	331	147	95	242	91	6	190	465	298	763
		Leaving...	8	17	16	6	22	9	15	33	33	21	54
39	21	Enrollment...	84	422	302	54	356	207	47	254	847	185	1,082
		Leaving...	26	36	37	12	49	32	3	35	95	25	120
89	21	Enrollment...	176	176	167	...	167	152	...	152	495	...	495
		Leaving...	21	21	13	...	13	16	...	16	50	...	50
100	21	Enrollment...	45	45	...	33	33	...	32	32	...	110	110
		Leaving...	1	1	4	...	4	2	...	2	...	7	7
12	4	Enrollment...	133	225	90	86	176	73	193	266	255	412	667
		Leaving...	14	8	13	3	16	10	14	24	37	25	62
88	4	Enrollment...	51	51	...	44	44	...	39	39	...	134	134
		Leaving...	1	1	...	...	...	...	3	3	...	4	4
98	4	Enrollment...	52	207	137	41	178	100	43	143	392	136	528
		Leaving...	7	4	14	5	19	10	4	14	31	13	44
42	3	Enrollment...	153	153	...	128	128	...	109	109	...	390	390
		Leaving...	14	14	...	8	8	...	11	11	...	33	33
62a	3	Enrollment...	89	89	...	82	82	...	85	85	...	256	256
		Leaving...	...	...	...	...	...	...	...	...	...	...	...
75	3	Enrollment...	198	198	178	...	178	188	...	188	564	...	564
		Leaving...	11	11	7	...	7	9	...	9	27	...	27
92	3	Enrollment...	114	114	...	122	122	...	120	120	...	356	356
		Leaving...	...	...	...	15	15	...	9	9	...	35	35
2b	2	Enrollment...	220	220	197	...	197	201	...	201	618	...	618
		Leaving...	13	13	13	...	13	20	...	20	46	...	46
65a	2	Enrollment...	111	214	104	74	178	83	...	148	298	...	540
		Leaving...	6	8	14	4	18	5	...	10	25	...	42
177	2	Enrollment...	138	138	...	120	120	...	141	141	...	399	399
		Leaving...	...	...	...	12	12	...	13	13	...	35	35
Total		Enrollment...	1,517	3,045	1,322	1,413	2,735	1,095	1,294	2,389	3,934	4,235	8,169
		Leaving...	106	219	127	102	229	111	94	205	344	309	653
Per cent. of enrollment leaving...			6.99	7.19	9.61	7.22	8.37	10.14	7.26	8.58	8.74	7.29	7.99

These figures were taken from the reports to the Committee on School Inquiry, June, 1911.

It will be observed that the losses, both in schools having all grades and in schools having only 1A-6B classes, are large. These large losses in the 5B, 6A, and 6B grades are due to the fact that many children are fourteen years old or over by the time they complete the 5A grade. Twenty-five per cent. of the children in these grades of the foregoing schools on the lower east side were found to be fourteen years old and above.<sup>1</sup> These over-age children, being able to obtain labor certificates, leave school, from choice or necessity, in large numbers.

The total loss in the 5B, 6A, and 6B classes of schools having all grades is 7.88 per cent. of the total enrollment; in schools having 1A-6B grades, 7.99 per cent., or a difference of .11 of 1 per cent. in favor of schools having all grades. So slight is the difference in the holding power of these two kinds of schools in the 5B, 6A, and 6B grades that, had the 8,169 pupils in these grades in schools having only 1A-6B grades been in schools having all classes, only nine fewer pupils would have left these schools during the February-June term of 1911.

It should be observed, however, that the losses in schools having only 1A-6B grades are 1 per cent. less in 6A classes, and in 6B .43 of 1 per cent. less than in the corresponding classes of schools having all grades and that only in 5B classes are the losses in schools having all grades less than in schools having only 1A-6B grades. If more 5B pupils drop from schools having only 1A-6B grades, there are of course fewer left to drop from the 6A and the 6B grades, hence it may be that .11 of one per cent. represents the actual difference in the holding power of these two kinds of schools. Such a difference is, however, too small to serve as a basis of judgment.

There are, however, reasons why schools having only 1A-6B classes should be able to hold relatively more 6B pupils than schools having all grades. The highest class in any school is the object of special attention and consideration. In schools having all grades this class is the 8B; in schools having only 1A-6B grades it is the 6B. Hence, more attention and consideration are given to 6B pupils in schools having only 1A-6B grades than are given such pupils in schools having all grades. The inevitable effect of this special attention and consideration is to increase the power of schools having only 1A-6B grades to hold 6B pupils who might otherwise drop out.

From the foregoing it appears that there is at least no ground in the data collected for the February-June term, 1911, for the prevailing opinion that more children leave the 6B classes in schools having only 1A-6B grades than leave the corresponding classes in schools having all grades. Indeed, the reverse seems to be true.

<sup>1</sup> From reports to the Committee on School Inquiry, June, 1911.

**Number of pupils promoted from the 6B grade not entering the 7A grade**

Do a larger per cent. of pupils promoted from the 6B grade fail to enter the 7A grade when they must go to an intermediate school than fail to enter the 7A grade when they can advance to this grade in their home school?

Table II shows the total number of 6B promotions January 31, 1911, in schools having all grades, and the total number of 7A beginners<sup>1</sup> in these schools for the February-June term of 1911; also the per cent. of 6B promotions entering the 7A grade. The table also shows the same facts for contributing schools and for intermediate schools 24, 159, and 62.

**Table II—6B Promotions and 7A Beginners**

SCHOOLS HAVING ALL GRADES (1A-8B)			CONTRIBUTING SCHOOLS AND INTERMEDIATE SCHOOLS 24, 159, AND 62		
Total 6B Promotions Jan. 31, 1911	Total 7A Beginners Feb.-June Term, 1911	Per Cent. of 6B Promotions Entering 7A Grade	Total 6B Promotions from Contributing Schools Jan. 31, 1911	Total 7A Beginners P. S. 24, 159, and 62, Feb.-June Term, 1911	Per Cent. of 6B Promotions Entering 7A Grade
1,524	1,510	99.08	1,484	1,470	99.05

The figures for this table were taken from special reports made by the principals and are for the schools given in Table III.

Few pupils in the foregoing schools, promoted from the 6B grade in January, 1911, failed to enter the 7A grade in February—only twenty-eight out of a total of 3,008. In neither kind of school does the number failing to enter the 7A grade amount to 1 per cent. of the 6B promotions, whereas .03 of 1 per cent. measures the difference in the total per cent. of loss. This difference is in favor of the schools having all grades; but it is so small that, had the same rate of loss prevailed as prevailed in schools having all grades, not a single additional pupil out of 1,484 would have entered the 7A of intermediate schools. In a word, the same relative number of 6B promotions actually entered the 7A grade of these two kinds of schools during the February-June term of 1911.

Table III shows the number of 6B promotions June 30, 1911, in schools<sup>2</sup> having all grades, and the number of 7A beginners<sup>1</sup> in these schools, for the September-January term of 1911-12; also the per cent. of all 6B promotions entering the 7A grade. The table also shows the same facts for contributing schools and intermediate schools 24, 159, and 62.

<sup>1</sup> Includes all pupils along with transfers to other schools, in attendance at least one school day.

<sup>2</sup> See first note on page 6.

Table III—6B Promotions and 7A Beginners

SCHOOLS HAVING ALL GRADES (1A-8B)						SCHOOLS CONTRIBUTING 6B PUPILS TO P. S. 24, 159, AND 62				INTERMEDIATE SCHOOLS (7A-8B)			
Schools	Districts	Promotions 6B Grade June 30, 1911		Beginners' 7A Grade Sept.-Jan. Term, 1911-12		Schools	Districts	Promotions 6B Grade June 30, 1911		Schools	Districts	Beginners' 7A Grade Sept.-Jan. Term, 1911-12	
		Boys	Girls	Total	Boys			Girls	Total			Boys	Girls
72	17	143	143	137	137	39	21	159	38	24	21	383	383
83	17	238	238	224	224	89	21	124	124	159g	20	416	416
188g	17	185	185	174	174	103	20	104	85	62	3	320	378
171	17	161	161	155	155	78	20	95	95	..	..	..	..
68g	21	66	66	63	63	57	20	153	153	..	..	..	..
90	21	120	120	118	118	157	19	1	1	..	..	..	..
119	21	125	125	112	112	159p	20	67	67	..	..	..	..
22B	4	125	125	122	122	184	19	18	18	..	..	..	..
31	4	65	65	63	63	2B	2	170	170	..	..	..	..
147	4	63	48	54	43	75	3	158	158	..	..	..	..
110	4	85	85	82	82	42	3	97	97	..	..	..	..
34	3	155	155	150	150	62gp	3	74	74	..	..	..	..
7	2	98	98	98	98	92	3	110	110	..	..	..	..
...	..	...	...	...	...	177	2	112	112	..	..	..	..
...	..	...	...	...	...	65g	2	2	2	..	..	..	..
Total	..	1,677	1,677	1,595	1,595	Total	..	736	849	Total	..	703	794
Per cent. of 6B pro- motions entering 7A grade.....	..	95.11	95.11	..	..	Per cent. of 6B pro- motions entering 7A grade.....	..	95.51	93.52	94.44	..	..	1,497

These figures were taken from special reports made by the principals.

The number of children leaving school is always smaller between the Fall and Spring terms when there is practically no interruption in the work of the school than between the Spring and Fall terms when there is a long vacation. It is, therefore, not surprising, as shown in Table III, that, in the schools having all grades, 4.89 per cent. of the pupils promoted from the 6B grade in June failed to enter the 7A grade in September, and that 5.56 per cent. of the 6B pupils promoted from contributing schools failed to enter the 7A grade of intermediate schools. The pupils lost in going from contributing schools to intermediate schools were, however, greater by only .67 of 1 per cent. (5.56—4.89) than the pupils lost between the 6B and 7A of schools having all grades—a difference of ten pupils.

The factors influencing the exact number of 6B promotions entering the 7A are so many and so complex that the small difference revealed by the foregoing data might have been due to the action of any one of several factors. To illustrate: In public school number 159<sup>1</sup> forty 6B promotions from contributing schools failed to attend during the September-January term a single day:

Disappeared (moved, leaving no address) .....	5
Working papers .....	15
Parochial schools .....	8
At home, over age .....	5
Moved to the country .....	5
At home, illness .....	1
Horace Mann School .....	1
<hr/>	
Total .....	40

Had the five children that disappeared and the five children that moved to the country asked for transfers, this simple fact alone would have erased any difference for the September-January term of 1911-12 in the number of 6B promotions entering the 7A of these two kinds of schools.

Apart from losses due to such causes as sickness, entering a private or parochial school, moving to another city, there is only one group of pupils, promoted from the 6B grade, that can fail to enter the 7A, *viz.*, children who are fourteen years of age and over. There are large numbers of such children—approximately each fourth child<sup>2</sup> in the schools of the City in the 6B grade has attained his fourteenth year. Any considerable difference, therefore, between the number of 6B promotions entering the 7A of schools having all grades and of intermediate schools must lie in the difference in attractiveness of these two kinds of schools for pupils fourteen years of age and over. There is no inherent reason

<sup>1</sup> From special report made by the principal.

<sup>2</sup> Report on Promotion, Non-Promotion and Part-Time, Table XXII, p. 73, and Table XXIV, p. 75.

why intermediate schools should not be even more attractive to such children than schools having all grades.

It has been shown, therefore, that the only ground for believing that more pupils promoted from the 6B enter the 7A of schools having all grades than of intermediate schools lies in the fact that for the spring term of 1911 the difference in per cent. of 6B promotions entering these two kinds of schools was .03 of 1 per cent., and for the September-January term of 1911-12 .67 of 1 per cent.—differences so small that out of 3,069 promoted pupils from contributing schools for the calendar year 1911 only ten fewer pupils failed to enter the 7A of intermediate schools than would have entered had these 6B promoted pupils been able to enter the 7A of their home school. These differences supply no adequate basis for the foregoing belief, and hence supply no grounds for the City Superintendent of Schools and the Board of Education to change their favorable attitude toward intermediate schools.

#### **Number of pupils leaving the 7A-8B grades without completing these grades**

Do a larger per cent. of 7th and 8th-year pupils leave the 7th and 8th grades without completing these grades in intermediate schools than leave these grades in schools having all grades?

Table IV shows for the February-June term, 1911, the enrollment in schools having all grades in 7A, 7B, 8A, and 8B grades, and the number leaving each of these grades; also grade for grade and for the same schools the per cent. of the total enrollment leaving. The table also shows the same facts for intermediate schools 24, 159, and 62. (See pages 14-15.)

The per cent. of pupils leaving these two kinds of schools varies grade for grade, and is different for boys and girls. While the per cent. of loss of boys in the 7A, 7B, and 8B grades is slightly greater in intermediate schools than in schools having all grades (less than 1 per cent. in each case, amounting to a difference of six, one, and one pupils respectively), when boys and girls are taken together, .71 of 1 per cent. more 7A pupils, 1.93 per cent. more 7B pupils, 2.05 per cent. more 8A pupils, and 1.03 per cent. more 8B pupils left schools having all grades than intermediate schools. The highest per cent. of loss, it will be observed, is in the 7A in both kinds of schools. The 7A grade is apparently the most trying of the four upper grades, and particularly trying in the intermediate school. Friendships in the old school are broken off; new acquaintances need to be formed, and the pupil must adjust himself to a new school life. Despite these facts, the holding power of the 7A grade in intermediate schools is apparently greater than the holding power of the 7A grade in schools having all classes.

The total per cent. of 7A-8B pupils leaving schools having all grades is 1.75 per cent. (8.56—6.81) greater than the total losses in intermediate schools. Had the same rate of loss prevailed as prevailed in intermediate

Table IV—Withdrawals—Schools Having All Grades (1A-8B)

Schools	Dis- tricts	7A Grade			7B Grade			8A Grade			8B Grade			Grand Total		
		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
72	17	Enrollment	152	152	142	142	142	135	135	135	86	86	86	515	515	515
83	17	Leaving	8	8	18	18	18	10	10	10	2	2	2	38	38	38
		Enrollment	249	249	220	220	220	142	142	142	130	130	130	741	741	741
168	17	Leaving	31	31	28	28	28	9	9	9	1	1	1	69	69	69
		Enrollment	212	212	165	165	165	147	147	147	110	110	110	634	634	634
171	17	Leaving	42	42	29	29	29	18	18	18	11	11	11	100	100	100
		Enrollment	145	145	121	121	121	134	134	134	95	95	95	495	495	495
68	21	Leaving	13	13	9	9	9	8	8	8	5	5	5	35	35	35
		Enrollment	93	93	81	81	81	67	67	67	64	64	64	305	305	305
90	21	Leaving	9	9	7	7	7	11	11	11	5	5	5	32	32	32
		Enrollment	110	110	140	140	140	106	106	106	68	68	68	424	424	424
119	21	Leaving	9	9	22	22	22	4	4	4	1	1	1	36	36	36
		Enrollment	138	138	122	122	122	127	127	127	87	87	87	474	474	474
22	4	Leaving	9	9	12	12	12	6	6	6	3	3	3	30	30	30
		Enrollment	215	215	227	227	227	176	176	176	165	165	165	783	783	783
31	4	Leaving	27	27	25	25	25	15	15	15	2	2	2	69	69	69
		Enrollment	79	79	80	80	80	87	87	87	48	48	48	294	294	294
147	4	Leaving	7	7	4	4	4	11	11	11	0	0	0	22	22	22
		Enrollment	158	148	152	104	256	108	102	210	115	75	190	533	429	962
110	4	Leaving	15	16	6	8	14	10	6	16	2	2	2	33	30	63
		Enrollment	3	104	5	103	108	6	104	110	1	97	98	15	408	423
34	3	Leaving	6	6	8	8	8	1	12	13	2	2	2	1	28	29
		Enrollment	103	103	74	74	74	134	134	134	99	99	99	410	410	410
7	2	Leaving	9	9	11	11	11	11	11	11	7	7	7	38	38	38
		Enrollment	145	153	298	107	108	215	215	215	252	252	252	261	261	513
		Leaving	15	13	28	4	4	8	8	8	19	19	19	17	17	36
Total		Enrollment	1,018	1,189	2,207	906	1,045	1,951	700	875	1,575	605	635	1,240	3,744	6,973
		Leaving	110	119	229	83	112	195	54	78	132	17	24	41	264	333
Per cent. of enrollment leaving			10.81	10.01	10.38	9.16	10.72	9.99	7.71	8.91	8.38	2.81	3.78	3.31	8.18	8.89

These figures were taken from the reports to the Committee on School Inquiry, June, 1911.



## Withdrawals—Intermediate Schools (7A-8B)

Schools	Dis- tricts	7A Grade			7B Grade			8A Grade			8B Grade			Grand Total		
		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
24	21	454	.....	454	375	.....	375	310	.....	310	283	.....	283	1,422	.....	1,422
		61	.....	61	42	.....	42	18	.....	18	13	.....	13	134	.....	134
159	20	.....	441	441	.....	375	375	.....	332	.....	332	.....	272	1,420	.....	1,420
		.....	43	43	.....	29	29	.....	23	.....	23	.....	5	100	.....	100
62	3	316	.....	350	666	291	349	254	368	622	314	360	674	1,175	.....	1,427
		28	.....	19	47	20	21	15	24	39	5	5	10	68	.....	69
		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total		770	791	1,561	666	724	1,390	564	700	1,264	597	632	1,229	2,597	2,847	5,444
		89	62	151	62	50	112	33	47	80	18	10	28	202	169	371
Per cent. of enrollment leaving.....		11.56	7.84	9.67	9.31	6.91	8.06	5.85	6.71	6.33	3.02	1.58	2.28	7.78	5.94	6.81

schools, 122 fewer pupils, out of the total of 6,973, would have left schools having all grades.

There is, therefore, no basis in the foregoing for the expressed opinion that more children leave the 7th and 8th-year classes in intermediate schools than leave the corresponding classes in schools having all grades.

#### **Relative rate of promotion in the 7A-8B grades**

That further comparisons might be made between schools having all grades and intermediate schools, data were collected on promotions and on terms of work lost and gained.

Table V shows for the February-June term, 1911, the enrollment in schools having all grades in the 7A, 7B, 8A, and 8B grades, and the number of pupils promoted June 30, 1911, in each of these grades; also grade by grade and for the same schools the per cent. of the total enrollment promoted. The table also shows the same facts for intermediate schools 24, 159, and 62. (See pages 17-18.)

The per cent. of boys promoted in the 7A, 7B, and 8B grades, as shown by Table V, is less by 7.87 per cent., 4.97 per cent., and 4.42 per cent. respectively in intermediate schools than in schools having all grades. A larger per cent. of boys in the 8A by 4.42 per cent., and a larger per cent. of girls in all four grades by 5.78 per cent., 11.40 per cent., 5.72 per cent., and .73 per cent. respectively were, however, promoted in intermediate schools than in schools having all grades; so that while in schools having all grades 83.65 per cent. of the total enrollment was promoted, in the intermediate schools the per cent. of promotion was 85.69 per cent.—a clear difference in favor of intermediate schools of 2.04 per cent. Had the same rate of promotion prevailed in the two kinds of schools, 142 more pupils, out of a total of 6,973, would have been advanced in schools having all grades.

A high percentage of promotion does not necessarily indicate a high degree of efficiency. Yet when due regard is paid to proper standards, that school is best which succeeds in advancing the largest percentage of its children.

#### **Number of terms of work lost and gained by 7A-8B pupils**

Table VI<sup>1</sup> shows, for certain schools having all grades, the number of graduates June 30, 1911, the terms of work lost and gained in the 7th and 8th years by these graduates, and the net terms of work lost; also the same facts for intermediate schools 24, 159, and 62. These

<sup>1</sup> Table VI contains data from certain schools having all grades in the same districts with intermediate schools 24, 159, and 62, and in districts contiguous to these intermediate schools. It was impossible, owing to the rush of work at the close of the school year, to collect data from all such schools in these districts.

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Table V—Rate of Promotion—Schools Having All Grades (1A-8B)

Schools	Dis- tricts	7A Grade			7B Grade			8A Grade			8B Grade			Grand Total					
		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total			
72	17	Enrollment.	152	152	142	142	135	135	86	86	86	515	515	515	438	438	741		
		Promoted.	127	127	110	110	117	117	84	84	84	438	438	438	741	741	130		
83	17	Enrollment.	249	249	220	220	142	142	124	124	124	635	635	635	634	634	110		
		Promoted.	204	204	179	179	128	128	147	147	147	451	451	451	451	451	95		
168	17	Enrollment.	212	212	165	165	105	105	94	94	94	495	495	495	411	411	305		
		Promoted.	145	145	107	107	105	105	134	134	134	203	203	203	424	424	68		
171	17	Enrollment.	145	145	121	121	81	81	67	67	67	384	384	384	474	474	87		
		Promoted.	116	116	93	93	113	113	100	100	100	375	375	375	783	783	689		
68	21	Enrollment.	93	93	81	81	227	227	176	176	176	163	163	163	294	294	245		
		Promoted.	47	47	49	49	80	80	87	87	87	48	48	48	245	245	190		
90	21	Enrollment.	110	110	140	140	106	106	102	102	102	489	489	489	319	319	513		
		Promoted.	98	98	117	117	102	102	110	110	110	212	212	212	242	242	454		
119	21	Enrollment.	138	138	122	122	127	127	85	85	85	605	605	605	3,744	3,744	6,973		
		Promoted.	108	108	91	91	100	100	92	92	92	577	577	577	3,075	3,075	5,833		
22	4	Enrollment.	215	215	227	227	176	176	197	197	197	1,240	1,240	1,240	3,229	3,229	6,973		
		Promoted.	180	180	197	197	149	149	87	87	87	2,758	2,758	2,758	5,833	5,833	11,921		
31	4	Enrollment.	79	79	80	80	87	87	80	80	80	48	48	48	212	212	242		
		Promoted.	65	65	70	70	62	62	62	62	62	99	99	99	410	410	410		
147	4	Enrollment.	158	148	306	152	104	256	108	102	210	115	75	190	533	429	962		
		Promoted.	137	118	255	135	81	216	96	85	181	110	73	183	478	357	835		
110	4	Enrollment.	3	104	107	5	103	108	6	104	110	1	97	98	15	408	423		
		Promoted.	3	98	101	5	95	100	5	92	97	1	95	96	14	394	410		
34	3	Enrollment.	103	103	74	74	134	134	85	85	85	90	90	90	319	319	513		
		Promoted.	83	83	61	61	61	61	108	108	108	212	212	212	242	242	454		
7	2	Enrollment.	145	153	298	107	108	215	700	875	1,575	605	605	605	3,744	3,744	6,973		
		Promoted.	116	140	256	96	102	198	576	715	1,291	577	577	577	3,075	3,075	5,833		
Total		Enrollment.	1,018	1,189	2,207	906	1,045	1,951	700	875	1,575	605	605	605	3,744	3,744	6,973		
		Promoted.	839	946	1,785	766	822	1,588	576	715	1,291	577	577	577	3,075	3,075	5,833		
Per cent. of enrollment promoted.		82.42			79.56			80.88			84.55			78.66			82.13		

Rate of Promotion—Intermediate Schools (7A-8B)

Schools	Dis- tricts	7A Grade			7B Grade			8A Grade			8B Grade			Grand Total		
		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
24	21	454	.....	454	375	.....	375	310	.....	310	283	.....	283	1422	.....	1422
159	20	304	.....	304	279	.....	279	260	.....	260	244	.....	244	1087	.....	1087
62	3	.....	441	441	.....	375	375	.....	332	332	.....	272	272	.....	1420	1420
		.....	359	359	.....	328	328	.....	293	293	.....	258	258	.....	1238	1238
		316	350	666	291	349	640	254	368	622	314	360	674	1175	1427	2602
		270	316	586	251	324	575	225	319	544	299	336	635	1045	1295	2340
Total		770	791	1561	666	724	1390	564	700	1264	597	632	1229	2597	2847	5444
		574	675	1249	530	652	1182	485	612	1097	543	594	1137	2132	2533	4665
Per cent. of enrollment promoted.....		74.5585.3480.01			79.5890.0685.04			85.9987.4386.79			90.9593.9992.51			82.0988.9785.69		

figures were taken from special reports made by the principals of the schools represented in the table.

**Table VI**  
**Acceleration and Retardation—Schools Having All Grades (1A-8B)**

Schools	Districts	Number Graduated June 30, 1911	Terms of Work Lost During 7th and 8th Years	Terms of Work Gained During 7th and 8th Years	Net Terms of Work Lost During 7th and 8th Years
72	17	84	10	2	...
83	17	124	45	4	...
168	17	94	38	0	...
171	17	89	20	6	...
22B	4	163	10	1	...
31	4	48	0	11	...
110	4	96	0	26	...
147	4	183	63	8	...
Total.....		881	186	58	128

**Intermediate Schools (7A-8B)**

Schools	Districts	Number Graduated June 30, 1911	Terms of Work Lost During 7th and 8th Years	Terms of Work Gained During 7th and 8th Years	Net Terms of Work Lost During 7th and 8th Years
24	21	244	83	53	...
159	20	258	41	16	...
62	3	635	91	134	...
Total.....		1,137	215	203	12

Table VI shows that the 881 graduates from the schools having all grades together lost, during their 7th and 8th years, 186 terms of work and gained fifty-eight, a net loss of 128, or the equivalent of a loss of a term's work for each group of seven pupils; the 1,137 graduates from intermediate schools, while losing 215 terms of work, gained 203, a net loss of only twelve, the equivalent of a term's work for each group of ninety-four pupils. Hence, had the same rate of loss prevailed in the two kinds of schools, the 1,137 graduates from intermediate schools would have lost 165 terms of work ( $128 \div 881 \times 1,137$ ), or thirteen times as many terms of work as were actually lost by these graduates.

This difference between the number of terms of work lost in schools having all grades and in intermediate schools suggests a wide difference in the two kinds of schools in the chances of losing or gaining a term's work. In schools having all grades, during the 7th and 8th years, three terms of work are lost to one term's work gained, whereas in intermediate schools the terms of work lost and gained are about equal.

This difference in terms of work lost and gained suggests also that

schools having all grades afford small opportunity to children to complete the course of the 7th and 8th years in less than the regular time—four terms, and that intermediate schools afford large opportunities to shorten the course. The difference in such opportunity is reflected in the number of terms required by the foregoing graduates to complete the course of the 7th and 8th years. In schools<sup>1</sup> having all grades 6.58 per cent. did the work in 3 terms; 75.82 per cent. did the work in 4 terms; 14.08 per cent. did the work in 5 terms; 3.52 per cent. did the work in 6 terms. In intermediate schools<sup>1</sup> .97 per cent. did the work in 2 terms; 15.92 per cent. did the work in 3 terms; 68.07 per cent. did the work in 4 terms; 11.17 per cent. did the work in 5 terms; 3.87 per cent. did the work in 6 terms.

Though terms of work lost and gained and the time required to do the last two years of the elementary school are not in themselves measures of efficiency, yet, when all things are taken into account, that school is the most efficient which does most to accelerate the progress of its pupils and which contributes the least to their retardation.

In these respects, the superiority of the intermediate school over schools having all grades is marked. Only 6.58 per cent. of the graduates from schools having all grades completed the last two years of the course ahead of time; this was accomplished by 16.89 per cent. of the graduates from intermediate schools. Further, 17.60 per cent. of the graduates from schools having all grades were retarded in the last two years of their course, while but 15.04 per cent. of the graduates from intermediate schools took more than the regulation time.

To be sure, pupils may be advanced from grade to grade without regard to their attainments. That pupils are not so advanced in intermediate schools is indicated by a study made by Mr. Coleman D. Frank.<sup>2</sup> Mr. Frank studied the successes and failures of pupils entering in 1910 the February class of the DeWitt Clinton High School. The schools selected were 160, 188, and 10, Manhattan, schools having all grades, and 24 and 62, intermediate schools. These five schools send, as a rule, the largest number of pupils to DeWitt Clinton High School.

The per cent. of pupils of these schools who succeeded and who failed to do all the work of the first and second terms was:

#### FIRST TERM

School	Successes	Failures
160	80%	20%
188	69%	31%
10	47%	53%
62	72%	28%
24	67%	33%

<sup>1</sup> Based on special reports by principals of these schools.

<sup>2</sup> Report of the Committee on Secondary Education, New York City, 1911.

## SECOND TERM

School	Successes	Failures
160	80%	20%
188	72%	28%
10	52%	48%
62	72%	28%
24	96%	4%

When the schools of the two kinds are grouped, the per cent. of successes and failures is:

## FIRST TERM

	Successes	Failures
Schools having all grades .....	68%	32%
Intermediate schools .....	70%	30%

## SECOND TERM

Schools having all grades .....	72%	28%
Intermediate schools .....	82%	18%

It appears that the highest per cent. of successes was attained in the first term by pupils from a school having all grades; in the second term, by pupils from an intermediate school. When the pupils coming from the different schools of each of the two kinds are taken together, the highest per cent. of successes was achieved in both terms by intermediate school graduates—at least partial evidence of the quality of the work done in these schools.

## Summary of the foregoing considerations

Schools having all grades, and contributing and intermediate schools have now been compared with reference to five points:

1. Number of pupils leaving the 6B grade without completing this grade.
2. Number of pupils promoted from the 6B grade not entering the 7A grade.
3. Number of pupils leaving the 7A-8B grades without completing these grades.
4. Relative rate of promotions in the 7A-8B grades.
5. Number of terms of work lost and gained by 7A-8B pupils.

The difference in the efficiency of the two kinds of schools with respect to the foregoing points may be summarized as follows:

1. Number of pupils (per 1,000) leaving the 6B grade without completing the grade:
  - a. In schools having all grades..... 90
  - b. In schools having only 1A-6B grades..... 86

2.	Number of pupils (per 1,000) promoted from the 6B grade not entering the 7A grade:	
	a. In schools having all grades.....	49
	b. In intermediate schools .....	56
3.	Number of pupils (per 1,000) leaving the 7A-8B grades without completing these grades:	
	a. In schools having all grades.....	86
	b. In intermediate schools .....	68
4.	Relative rate of promotion (per 1,000) in the 7A-8B grades:	
	a. In schools having all grades .....	836
	b. In intermediate schools .....	857
5.	Net terms of work (per 1,000) lost by 7A-8B pupils:	
	a. In schools having all grades .....	145
	b. In intermediate schools .....	11

Hence, we conclude—

- (a) That fewer pupils leave the 6B classes in schools having only 1A-6B grades by .43 of 1 per cent. than leave the corresponding classes in schools having all grades.
- (b) That more 6B promoted pupils by .67 of 1 per cent. fail to enter the 7A grade of intermediate schools than fail to enter the 7A when they can advance to this grade in their home school.
- (c) That fewer pupils leave the 7th and 8th-year classes of intermediate schools by 1.75 per cent. than leave the corresponding classes of schools having all grades.
- (d) That more 7th and 8th-year pupils are promoted in intermediate schools by 2.04 per cent. than are promoted in schools having all grades.
- (e) That thirteen times as many terms of work are lost by 7th and 8th-year pupils in schools having all grades as are lost by such pupils in intermediate schools.

In only one respect do schools having all grades show a higher efficiency than intermediate schools, and in this respect the higher efficiency is slight. In all other points the intermediate schools show a greater efficiency than schools having all grades.

The data on which the foregoing conclusions rest, with the exception of the data on pupils promoted from the 6B grade and not entering the 7A grade, cover but the February-June term of 1911. These data, however, in the case of 6B losses cover 4,409 pupils; in the case of losses between the 6B-7A grades, 6,270 pupils; in the case of losses from the



7A-8B grades, 12,417; in the case of relative rate of promotion, 12,417; in the case of terms of work lost and gained, 2,018 graduates—numbers sufficiently large and taken from schools operating under conditions sufficiently similar to the conditions surrounding intermediate schools to indicate tendencies. Final conclusions with respect to the educational efficiency of schools having all grades and intermediate schools would, of course, require the collection of data similar to the above for a number of terms.

### **B—Economy of the Intermediate School**

Education should be conducted as economically as possible. Hence in carrying on any given kind of school work, the expense of different ways of accomplishing the same end should be considered.

Any difference in the expense of schools having all grades and intermediate schools is due almost exclusively to differences in (1) the number of schoolrooms needed; (2) the number of teachers required; and (3) the supplies and equipment needed to instruct a given number of 7th and 8th-year pupils. Comparisons with respect to these three points will, therefore, bring out the difference between the cost of instructing 7th and 8th-year pupils in these two kinds of schools.

The schools having all grades selected for the purpose of these comparisons are, with few exceptions, the same as those selected for the foregoing comparisons with respect to educational efficiency. Their selection, however, does not imply the suggestion that the 7A-8B pupils in them could be brought into intermediate schools. Hence, the comparisons to be made will merely indicate what the probable saving would be where conditions are such that 7A-8B children in schools having all grades can be brought into intermediate schools.

#### **Difference in the number of schoolrooms required**

To instruct 7th and 8th-year pupils at least four different kinds of schoolrooms are needed: regular classrooms, manual training shops, cooking rooms, and gymnasiums.

#### **Difference in number of regular classrooms required**

Table VII shows for the February-June term of 1911, the enrollment in 7A-8B classes in schools having all grades, the number of regular classrooms used in instructing these classes, and the average number of 7A-8B pupils per regular classroom. The table also shows the same facts for intermediate schools 24, 159, and 62. (See page 24.)

The average number of 7A-8B pupils per classroom varies, as shown by Table VII, in the foregoing schools from thirty-five to fifty-two. These variations are due to differences in size of classrooms and to the particular number of 7A-8B pupils to be instructed.

Table VII—Class-Rooms Required

SCHOOLS HAVING ALL GRADES (1A-8B)					INTERMEDIATE SCHOOLS (7A-8B)				
Schools	Districts	7A-8B Enrollment Feb.-June Term, 1911	Number of Regular Classrooms	Average Number of Pupils per Classroom	Schools	Districts	7A-8B Enrollment Feb.-June Term, 1911	Number of Regular Classrooms	Average Number of Pupils per Classroom
72	17	515	11	46	24	21	1,422	28	50
83	17	741	15	49	159	20	1,420	32	44
168	17	634	13	48	62	3	2,602	59	44
171	17	495	12	41	...	...	...	...	...
68	21	305	8	38	...	...	...	...	...
90	21	424	12	35	...	...	...	...	...
119	21	474	12	39	...	...	...	...	...
22	4	783	18	43	...	...	...	...	...
31	4	294	7	42	...	...	...	...	...
110	4	423	8	52	...	...	...	...	...
147	4	962	23	41	...	...	...	...	...
34	3	410	10	41	...	...	...	...	...
7	2	513	12	42	...	...	...	...	...
Total.....	.....	6,973	161	43.31	Total.....	.....	5,444	119	45.75

These figures were taken from reports to the Committee on School Inquiry, June, 1911, and from principals' monthly reports for June, 1911, on file at the office of the Board of Education.

It will also be observed that the average number of pupils per classroom in schools having all grades is 43.31, in intermediate schools, 45.75—an average difference in favor of the intermediate school of 2.44 pupils. Hence, had the average number of pupils per classroom been the same in the two kinds of schools, to provide for the 6,973 7A-8B pupils in schools having all grades would have required only 152.42 classrooms ( $6,973 \div 45.75$ ) instead of 161, or 8.58 fewer than were used.

It therefore appears that when 7A-8B pupils are brought together in intermediate schools the number of regular classrooms required is 5.33 per cent. ( $8.58 \div 161$ ) less than when 7th and 8th-year pupils are taught in schools having all grades.<sup>1</sup>

### Difference in the number of manual training shops required

Table VIII shows, as of April, 1911, for schools having all grades the number of single shops, the number of 7th and 8th-year pupils instructed in each shop, and the average number instructed per shop. The table also shows the same facts for intermediate schools 24 and 62. Intermediate school 159 is a girls' school, and hence has no shop.

**Table VIII—Shops Required—Schools Having All Grades (1A-8B)**

Schools	Districts	Number of Single Shops	Number of 7th & 8th-Year Pupils as of April, 1911, Instructed in Each	Average No. 7th & 8th-Year Pupils Instructed per Shop
20	6	1	438	
21	1	1	161	
23	1	1	190	
25	6	1	405	
29	1	1	31	
34	3	2	408	
44	1	1	74	
64	7	1	501	
79	6	2	334	
83	17	2	728	
114	1	1	257	
147	4	2	527	
160	5	2	569	
188 B	7	1	322	
Total,		19	4,945	260

<sup>1</sup> It will be observed that the average number of pupils per class-room in both schools having all grades and intermediate schools is high. Because comparisons are made under these conditions, the inference should not be drawn that we favor overcrowded class-rooms. We favor the opposite. The comparisons are made on the assumption that whatever the average number of pupils per class-room in theory, in practice, the difference in the actual number of pupils per class-room in schools having all grades and in intermediate schools would be similar to the difference found for the February-June term, 1911.

Table IX shows, as of April, 1911, for schools having all grades, the number of single shops, the total number of pupils instructed in each shop, and the average number instructed per shop. The table also shows the same facts for intermediate schools 24 and 62. (See page 27.)

In schools having all grades the average number of all pupils instructed per shop was 289; in intermediate schools, 358—an average difference in favor of intermediate schools of sixty-nine pupils. Had the same average prevailed as prevailed in intermediate schools, to provide for the total of 5,501 pupils in schools having all grades, only 15.37 shops ( $5,501 \div 358$ ) instead of nineteen would have been required, or 3.63 fewer than were used.

When, therefore, manual training is extended to other than 7th and 8th-year pupils, thus increasing the total use of shops, only 19.11 per cent. ( $3.63 \div 19$ ) fewer shops are required in intermediate schools than in schools having all grades, to provide for the same number of pupils.<sup>1</sup>

Hence, intermediate schools require 27.32 per cent. (see above) fewer shops than schools having all grades, only when the instruction of 7th and 8th-year pupils alone is taken into account.

**Shops Required—Intermediate Schools (7A-8B)**

Schools	Districts	Number of Single Shops	Number of 7th & 8th-Year Pupils as of Ap. 11, 1911, Instructed in Each	Average Number 7th & 8th-Year Pupils Instructed per Shop
24	21	3	1,368	
62	3	4	1,138	
Total,		7	2,506	358

These figures were taken from the Teachers' Schedule of Assignment and from the Principals' Statement of Shop Work, on file at the office of the Board of Education.

In schools having all grades the average number of 7th and 8th-year pupils instructed per shop is 260; in intermediate schools, 358—an average difference in favor of intermediate schools of ninety-eight pupils. Had the same average prevailed as prevailed in intermediate schools, to provide for the 4,945 7th and 8th-year pupils in schools having all grades, only 13.81 shops ( $4,945 \div 358$ ) instead of nineteen would have been required, or 5.19 fewer than were used. It therefore requires 27.32 per cent. ( $5.19 \div 19$ ) fewer shops to care for a given number of 7th and 8th-grade pupils in intermediate schools than to care for the same number of such pupils in schools having all grades.

Manual training is regularly taught only in the 7th and 8th years. The Board of Superintendents, however, may authorize the giving of such instruction to other than 7th and 8th-year pupils. This is done

<sup>1</sup> See closing sentence of this section, p. 30.

particularly in case of over-age boys in the 6A and 6B grades. Manual training shops may consequently be used by other than 7th and 8th-year pupils.

**Table IX—Shops Required—Schools Having All Grades (1A-8B)**

Schools	Districts	Number of Single Shops	Total Number of Pupils as of April, 1911, Instructed in Each Shop	Average Number Instructed per Shop
20	6	1	438	
21	1	1	180	
23	1	1	190	
25	6	1	405	
29	1	1	63	
34	3	2	641	
44	1	1	127	
64	7	1	501	
79	6	2	483	
83	17	2	728	
114	1	1	332	
147	4	2	527	
160	5	2	564	
188 B	7	1	322	
Total,		19	5,501	289

**Shops Required—Intermediate Schools (7A-8B)**

Schools	Districts	Number of Single Shops	Total Number of Pupils as of April, 1911, Instructed in Each Shop	Average No. Instructed per Shop
24	21	3	1,368	
62	3	4	1,138	
Total,		7	2,506	358

These figures were taken from the same sources as the figures in Table VIII.

### **Difference in the number of cooking rooms required**

Owing to a lack of uniformity in the method of using cooking rooms, it is impossible to compare intermediate schools and schools having all grades with respect to the number of 7th and 8th-year pupils taught per cooking room. In schools such as 13, 71, 72, and 137, Manhattan, the group method of instruction is followed—i. e., instead of the pupils doing the work themselves, they observe cooking done in whole or in part by the teacher. In some schools, such as 90, 159, and 188 G, due to the lack of adequate individual equipment, children are given considerable theory; this reduces by one-half or one-third the amount of actual cooking. In other schools, the entire time assigned to the study is given to cooking. It is, however, possible to compare schools having all grades

and intermediate schools with reference to the periods per week cooking rooms are used.

Table X shows, as of April, 1911, for schools having all grades the number of cooking rooms, the number of single periods each cooking room was used per week for the instruction of 7th and 8th-year pupils; and the average number of single periods per week in use. The table also shows the same facts for intermediate schools 62 and 159.

**Table X—Cooking Rooms Required—Schools Having All Grades (1A-8B)**

Schools	Districts	Number of Single Cooking Rooms	Single Periods Used per Week for 7th & 8th-Year Pupils, April, 1911	Average No. Single Periods Used per Week for 7th & 8th-Year Pupils
1	1	1	28	
4	5	1	30	
21	1	1	12	
23	1	1	26	
31	4	1	28	
63	6	1	34	
68	21	1	26	
90	21	1	28	
91	6	1	30	
110	4	1	30	
119	21	1	30	
168	17	1	27	
188 G	7	1	24	
Total,		13	353	27.15

**Cooking Rooms Required—Intermediate Schools (7A-8B)**

Schools	Districts	Number of Single Cooking Rooms	Single Periods Used per Week for 7th & 8th-Year Pupils, April, 1911	Average No. Single Periods Used per Week for 7th & 8th-Year Pupils
62	3	2	63	
159	20	2	68	
Total,		4	131	32.75

These figures were taken from the Teachers' Schedule of Assignment and from Principals' Statement of Cooking, on file at the office of the Board of Education.

Table X shows that in schools having all grades, cooking rooms were used in the instruction of 7th and 8th-year pupils on the average 27.15 single periods per week; in intermediate schools, 32.75—an average difference in favor of intermediate schools of 5.60 periods. Had the same average prevailed as prevailed in intermediate schools, the 353 periods of instruction given in schools having all grades could have been

given in 10.78 cooking rooms ( $353 \div 32.75$ ) instead of thirteen, or in 2.22 less than were used.

It therefore appears that 17.10 per cent. ( $2.22 \div 13$ ) fewer cooking rooms are required to provide for a given number of 7th and 8th-year pupils in intermediate schools than to provide for the same number of such pupils in schools having all grades.

Like manual training, cooking is regularly taught only in the 7th and 8th years. The Board of Superintendents may, however, authorize the giving of cooking to other pupils. This is done particularly in case of over-age girls in the 6A and 6B grades. Cooking rooms may consequently be used by other than 7th and 8th-year pupils.

Table XI shows, as of April, 1911, for schools having all grades, the number of cooking rooms, the total number of single periods each cooking room was used per week, and the average number of single periods per week in use. This table also shows the same facts for intermediate schools 62 and 159.

**Table XI—Cooking Rooms Required—Schools Having All Grades (1A-8B)**

Schools	Districts	Number of Single Cooking Rooms	Total Number of Single Periods Used per Week for All Pupils	Average Number Single Periods Used per Week for All Pupils
1	1	1	35	
4	5	1	30	
21	1	1	30	
23	1	1	30	
31	4	1	30	
63	6	1	34	
68	21	1	28	
90	21	1	32	
91	6	1	30	
110	4	1	30	
119	21	1	30	
168	17	1	30	
188 G	7	1	30	
Total,		13	399	30.69

**Cooking Rooms Required—Intermediate Schools (7A-8B)**

Schools	Districts	Number of Single Cooking Rooms	Total Number of Single Periods Used per Week for All Pupils	Average Number Single Periods Used per Week for All Pupils
62	3	2	63	
159	20	2	68	
Total,		4	131	32.75

These figures are taken from the same sources as the figures in Table X.

Cooking rooms are used on the average in schools having all grades a total of 30.69 single periods per week; in intermediate schools, 32.75—an average difference in favor of intermediate schools of 2.06 single periods. Had the same average prevailed in the two kinds of schools the total of 399 periods of instruction given in schools having all grades could have been given in 12.18 cooking rooms ( $399 \div 32.75$ ) instead of thirteen, or in .82 less than were used.

When the total use of cooking rooms in intermediate schools is compared with the total use in schools having all grades it appears that only 6.31 per cent. ( $.82 \div 13$ ) fewer are required in intermediate schools than in schools having all grades to instruct the same number of pupils.

Hence, it is only when the instruction of 7th and 8th-year pupils is taken into account that intermediate schools require 17.10 per cent. (see pages 28-29) fewer cooking rooms than schools having all grades.

The foregoing difference of 27.32 per cent. in the number of shops and 17.10 per cent. in the number of cooking rooms needed by intermediate schools and by schools having all grades, to instruct a given number of 7th and 8th-year pupils, is due to the fact that shops and cooking rooms in the intermediate schools are kept in use practically the entire school day. In consequence, they cannot be used to instruct pupils below the 7A grade, even were it practical to send such pupils to an intermediate school merely for manual training and cooking. To provide for the pupils below the 7A grade now instructed in schools having all grades would, therefore, require shops and cooking rooms in addition to those needed in the intermediate schools. Hence, in considering the saving in shops and cooking rooms that might be effected by bringing 7A-8B pupils into intermediate schools, the use of shops and cooking rooms to instruct other than 7th and 8th-year pupils in schools having all grades should be taken into account (see the first note, page 32). Moreover, should intermediate schools be made universal and manual training and cooking be made general for over-age 6A-6B pupils, the saving in shops and cooking rooms might be less than the above estimates, even when the instruction of pupils below the 7A is taken into account, because under such conditions, to provide manual training and cooking for such over-age pupils might require relatively more shops and cooking rooms than under present conditions.

#### **Difference in the number of gymnasiums required**

Table XII gives the number of gymnasiums in schools having all grades, the number of single periods per week each was used during the February-June term, 1911, for the instruction of 7th and 8th-year pupils, and the average number of single periods per week in use. The table also shows the same facts for intermediate schools 24, 159, and 62.



Table XII—Gymnasiums Required

SCHOOLS HAVING ALL GRADES (1A-8B)					INTERMEDIATE SCHOOLS (7A-8B)				
Schools	Districts	Number of Gymnasiums	Single Periods Used per Week for 7th and 8th-Year Pupils	Average No. of Single Periods Used per Week for 7th and 8th-Year Pupils	Schools	Districts	Number of Gymnasiums	Single Periods Used per Week for 7th and 8th-Year Pupils	Average No. of Single Periods Used per Week for 7th and 8th-Year Pupils
1	1	1	36	.....	24	21	1	45	.....
4	5	1	45	.....	159	20	1	22	.....
23	1	1	36	.....	62	3	2	100	.....
44	1	1	16	.....	...	...	...	...	.....
91	6	1	40	.....	...	...	...	...	.....
114	1	1	32	.....	...	...	...	...	.....
Total.....	.....	6	205	34.17	Total.....	.....	4	167	41.75

These figures were taken from a special report made by the City Superintendent of Schools to the Committee on School Inquiry, dated July 10, 1911.

Gymnasiums, it appears, are used in schools having all grades on the average 34.17 single periods per week; in intermediate schools, 41.75—an average difference in favor of intermediate schools of 7.58 single periods. Had the same average prevailed in the two kinds of schools the total of 205 periods of instruction in schools having all grades could have been given in 4.91 gymnasiums ( $205 \div 41.75$ ) instead of six, or in 18.17 per cent. fewer gymnasiums than were used.

### Summary

In view of the foregoing data, it appears that to provide for a given number of 7A-8B pupils in intermediate schools requires:

- 5.33 per cent. fewer regular classrooms
- 27.32 per cent. or 19.11 per cent. fewer shops<sup>1</sup>
- 17.10 per cent. or 6.31 per cent. fewer cooking rooms,<sup>1</sup> and
- 18.17 per cent. fewer gymnasiums

than to provide for the same number of such children in schools having all grades.

The saving in money, represented by these differences in the number of rooms required in intermediate schools and in schools having all grades, is brought out, if these differences are considered in relation to caring for 20,000 7A-8B pupils.<sup>2</sup> On the basis of the rooms required to care for the foregoing 7A-8B pupils in schools having all grades, and in intermediate schools, to provide for 20,000 such pupils, equally divided between boys and girls, there would be needed in:

	Schools Having All Grades	Intermediate Schools	Difference in Favor of Inter- mediate Schools
Regular classrooms.....	462	438	24
Manual training shops...	39	28	11 or 4 <sup>1</sup>
Cooking rooms.....	35	27	8 or 4 <sup>1</sup>
Gymnasiums.....	27	21	6
	563	514	49 or 38 <sup>1</sup>

To care for 20,000 7A-8B pupils, there is a difference of forty-nine in the number of rooms needed in these two kinds of schools—a difference of 8.70 per cent. ( $49 \div 563$ ) in favor of intermediate schools; when

<sup>1</sup> According as the use of shops and cooking rooms in schools having all grades to instruct other than 7th and 8th-grade pupils is disregarded or taken into account.

<sup>2</sup> This illustration does not imply the suggestion that 20,000 7A-8B pupils out of the 100,000 now in the schools of New York could be brought into intermediate schools. With the time at the disposal of the Committee on School Inquiry, it is impossible to determine the exact number that could be advantageously segregated in intermediate schools.

the use of shops and cooking rooms in schools having all grades to instruct other than 7th and 8th-year pupils is taken into account, there is a difference of thirty-eight or 6.75 per cent. in the rooms required. This difference, at the least of thirty-eight rooms, represents not less than \$400,000<sup>1</sup> in original investment, and an annual difference of 6.88 per cent. in cost of upkeep and operating expenses.

#### **Difference in the number of teachers required**

In the instruction of 7th and 8th-year pupils, three kinds of teachers are employed: regular class teachers, manual training teachers, and cooking teachers.

#### **Difference in the number of regular class teachers required**

Table XIII shows, for the February-June term of 1912, the enrollment of 7A, 7B, 8A, and 8B classes in schools having all grades, the number of regular class teachers in each grade, and the average number of pupils per teacher. The table also shows the same facts for intermediate schools 24, 159, and 62. (See page 34.)

It will be observed that the number of pupils per teacher in schools having all grades ranges from thirty-two to fifty-five, and that there were at least twenty over-size classes—classes having an enrollment of more than fifty pupils.

The average number of pupils per regular class teacher in schools having all grades is 43.31; in intermediate schools, 45.75—an average difference in favor of intermediate schools of 2.44 pupils. Hence, had the average number of pupils per regular class teacher been the same as in intermediate schools, the 6,973 7A-8B pupils in schools having all grades would have been instructed by 152.42 teachers ( $6,973 \div 45.75$ ) instead of 161, or by 8.58 fewer teachers than were engaged. Further, had these 6,973 pupils been in intermediate schools, it would have been possible, without increasing the number of teachers, to have reduced the foregoing over-size classes, whereas in schools having all grades to have done this would have required additional teachers.

It therefore appears that to instruct the same number of 7A-8B pupils, intermediate schools require fewer regular class teachers than schools having all grades by 5.33 per cent. ( $8.58 \div 161$ ). Also that classes can be made more uniform in size. This tends to equalize opportunity and to add to the effectiveness of the instruction.

<sup>1</sup> The estimated cost of a thirty-nine-room building is \$330,000; of the site, \$70,000. These estimates are based on the cost of new buildings as given in the Corporate Stock Requirements submitted by the Board of Education, March, 1911, and on the cost of sites, as given in the annual Financial and Statistical Report of the Board of Education for 1910.

Table XIII—Teachers Required—Schools Having All Grades (1A-8B)

Schools	Districts	7A GRADE			7B GRADE			8A GRADE			8B GRADE			GRAND TOTAL		
		Enroll-ment	Regular Teachers	Pupils per Teacher	Enroll-ment	Regular Teachers	Pupils per Teacher	Enroll-ment	Regular Teachers	Pupils per Teacher	Enroll-ment	Regular Teachers	Pupils per Teacher	Enroll-ment	Regular Teachers	Pupils per Teacher
72	17	152	3	50	142	3	47	135	3	45	86	2	43	515	11	46
83	17	249	5	49	220	4	55	142	3	47	130	3	43	741	15	49
168	17	212	4	53	165	4	41	147	3	49	110	2	55	634	13	48
171	17	145	4	36	121	3	40	134	3	44	95	2	47	495	12	41
68	21	93	2	46	81	2	40	67	2	33	64	2	32	305	8	38
90	21	110	3	36	140	4	35	106	3	35	68	2	34	424	12	35
119	21	138	4	34	122	3	40	127	3	42	87	2	43	474	12	39
22	4	215	5	43	227	6	37	176	4	44	165	3	55	783	18	43
31	4	79	2	39	80	2	40	87	2	43	48	1	48	294	7	42
110	4	107	2	53	108	2	54	110	2	55	98	2	49	423	8	52
147	4	306	7	43	256	6	42	210	5	42	190	5	38	962	23	41
34	3	103	2	51	74	2	37	134	4	33	99	2	49	410	10	41
7	2	298	6	49	215	6	35	....	....	....	....	....	....	513	12	42
Total		2,207	49	45.05	1,951	47	41.51	1,575	37	42.57	1,240	28	44.29	6,973	161	43.31

Teachers Required—Intermediate Schools (7A-8B)

Schools	Districts	7A GRADE			7B GRADE			8A GRADE			8B GRADE			GRAND TOTAL		
		Enroll-ment	Regular Teachers	Pupils per Teacher	Enroll-ment	Regular Teachers	Pupils per Teacher	Enroll-ment	Regular Teachers	Pupils per Teacher	Enroll-ment	Regular Teachers	Pupils per Teacher	Enroll-ment	Regular Teachers	Pupils per Teacher
24	21	454	9	50	375	7	53	310	6	51	283	6	47	1,422	28	50
159	20	441	10	44	375	9	41	332	7	47	272	6	45	1,420	32	44
62	3	666	15	44	640	15	42	622	14	44	674	15	44	2,602	59	44
Total		1,561	34	45.91	1,390	31	44.84	1,264	27	46.81	1,229	27	45.52	5,444	119	45.75

These figures were taken from the reports to the Committee on School Inquiry, June, 1911, and from a special report by the City Superintendent of Schools, dated July 16, 1911.

**Difference in the number of manual training teachers required**

Table XIV shows, as of April, 1911, for schools having all grades, the number of 7th and 8th-year pupils instructed in manual training, the number of manual training teachers giving their whole time to the instruction of 7th and 8th-year pupils, and the average number of 7th and 8th-year pupils per teacher. The table also shows the same facts for intermediate schools 24 and 62.

**Table XIV—M. T. Teachers Required—Schools Having All Grades (1A-8B)**

Schools	Districts	7th & 8th-Year Pupils Instructed as of April, 1911	Number of Manual Training Teachers Giving Whole Time to 7th & 8th-Year Pupils	Average Number of 7th and 8th-Year Pupils per Teacher
20	6	438	1.00	
21	1	161	.46	
23	1	190	.51	
25	1	405	.96	
29	1	31	.17	
34	3	408	1.38	
44	1	74	.23	
64	7	501	1.00	
79	6	334	1.40	
83	8	728	1.93	
114	1	257	.80	
147	4	527	1.94	
160	5	569	1.94	
188 B	7	322	.89	
Total,		4,945	14.61	338

**M. T. Teachers Required—Intermediate Schools (7A-8B)**

Schools	Districts	7th & 8th-Year Pupils Instructed as of April, 1911	Number of Manual Training Teachers Giving Whole Time to 7th & 8th-Year Pupils	Average Number of 7th and 8th-Year Pupils per Teacher
24	21	1,368	3.00	
62	3	1,138	3.80	
Total,		2,506	6.80	368

These figures were taken from the Teachers' Schedule of Assignment and from the Principals' Statement of Shop Work, on file at the office of the Board of Education.

The average number of 7th and 8th-year pupils per manual training teacher in schools having all grades is 338; in intermediate schools, 368—an average difference of thirty pupils. Hence, had the same number of pupils been instructed per manual training teacher in schools having

all grades as were instructed in intermediate schools, to have taught manual training to the 4,945 7th and 8th-year pupils in schools having all grades would have required 13.44 manual training teachers ( $4,945 \div 368$ ) instead of 14.61, or 1.17 fewer than were engaged.

It therefore appears that intermediate schools need fewer manual training teachers than schools having all grades by 8.01 per cent. ( $1.17 \div 14.61$ ) to give shopwork to the same number of 7th and 8th-year pupils.<sup>1</sup>

#### **Difference in the number of cooking teachers required**

Owing to differences in cooking instruction, it is impossible to compare the number of cooking teachers needed, in schools having all grades and intermediate schools, to instruct the same number of 7th and 8th-year pupils. Cooking classes are, however, organized and conducted in the same way as classes in manual training, and the same general conditions affect the size of class and the number of pupils per teacher.

It is, therefore, fair to infer that were it possible to compare the number of cooking teachers required, in schools having all grades and in intermediate schools, to teach a given number of 7th and 8th-year pupils, the same difference would be found in the number of cooking teachers needed as is found in the number of manual training teachers required—that is, it is but fair to infer that intermediate schools require fewer cooking teachers than schools having all grades by 8.01 per cent. to give cooking to the same number of 7th and 8th-year pupils.

#### **Summary**

In view of the foregoing data, it appears that to instruct a given number of 7A-8B pupils in intermediate schools, in comparison with instructing the same number of such pupils in schools having all grades, requires:

- 5.33 per cent. fewer regular class teachers
- 8.01 per cent. fewer manual training teachers
- 8.01 per cent. fewer cooking teachers

The saving in money, represented by these differences in the number of teachers required in intermediate schools and in schools having all grades, is brought out, if these differences are considered in relation to instructing 20,000 7A-8B pupils.<sup>2</sup> On the basis of the teachers required to instruct the foregoing 7A-8B pupils in schools having all grades,

<sup>1</sup> The extension of manual training and cooking to over-age 6A-6B pupils might, as stated above, lessen the estimated saving in manual training and cooking rooms, but such an extension would not affect the estimated saving in manual training and cooking teachers, because this extension would in nowise affect the number of teachers required to instruct a given number of 7A-8B pupils in the two kinds of schools.

<sup>2</sup> See second note on page 32.

and to instruct such pupils in intermediate schools, to provide for 20,000 7A-8B pupils, equally divided between boys and girls, there would be required in:

	Schools Having All Grades	Intermediate Schools	Difference in Favor of Intermediate Schools
Regular class teachers...	462	438	24
Manual Tr. teachers....	30	28	2
Cooking teachers.....	30	28	2
	522	494	28

In caring for 20,000 7A-8B pupils, there is a difference of twenty-eight in the number of teachers required in these two kinds of schools—a difference of 5.36 per cent. ( $28 \div 522$ ) in favor of intermediate schools. This difference of twenty-eight teachers represents an annual difference in cost of not less than \$35,000.<sup>1</sup>

#### Difference in the amount of supplies and equipment required

The term "supplies" is used by the Board of Education to include all material aids to instruction. A distinction, however, should be drawn between supplies which are directly consumed by pupils—for example, paper pads, pencils, ink, textbooks, etc.—and supplies which are to a greater or less extent permanent—for example, maps, globes, science apparatus, gymnasiums, cooking rooms, and shop equipment.

It is obvious that no saving would be effected in supplies which are directly consumed by bringing 7A-8B pupils into intermediate schools. It is, however, equally obvious that great saving would thereby be effected in supplies which are to a greater or less extent permanent. The saving on equipment in shops, cooking rooms, and gymnasiums would be in direct relation to the difference in the number of these required in intermediate schools and in schools having all grades to instruct a given number of 7A-8B pupils. Hence, there would be a saving of 19.11 per cent. or 27.32 per cent.<sup>2</sup> on equipment for shops; of 6.31 per cent. or 17.10 per cent.<sup>3</sup> on equipment for cooking rooms—according as the use of shops and cooking rooms in schools having all grades to instruct other than 7th and 8th-year pupils is taken into account or disregarded—and a saving of 18.17 per cent.<sup>4</sup> on equipment for gymnasiums.

<sup>1</sup> Estimated on the basis of the average annual salary of 7A-8A, 8B, and of manual training and cooking teachers, as stated in the Board of Education's Estimate, 1912.

<sup>2</sup> See pages 25-27.

<sup>3</sup> See pages 27-30.

<sup>4</sup> See pages 30-32.

It was impossible to obtain data on what is spent for 7th and 8th-year pupils on such permanent equipment as maps, globes, science apparatus, etc. Hence, it is impossible to estimate what saving would be effected by bringing 7A-8B pupils into intermediate schools. This saving would, however, be no inconsiderable sum.

### Summary of the foregoing considerations

Schools having all grades and intermediate schools have been compared with respect to economic efficiency on three points:

1. The number of schoolrooms required.
2. The number of teachers required.
3. The amount of equipment required.

It has been shown:

- (a) That intermediate schools require fewer rooms by 8.70 per cent. or by 6.75 per cent.<sup>1</sup>
- (b) That intermediate schools require fewer teachers by 5.36 per cent.
- (c) That intermediate schools require less equipment in shops by 19.11 per cent. or by 27.32 per cent.,<sup>1</sup> in cooking rooms by 6.31 per cent. or by 17.10 per cent.,<sup>1</sup> and in gymnasiums by 18.17 per cent.

In view of these differences in requirements, and hence differences in cost, could 20,000 7A-8B pupils be brought into intermediate schools<sup>2</sup> the immediate saving would at the very least be sufficient to provide for the erection of a school building of thirty-nine rooms, and for the annual total cost of operating such a school.<sup>3</sup>

### C—Educational Opportunities Afforded by the Intermediate School

The intermediate school should not be judged, however, only by what it now is, but also by what it might become.

Intermediate schools are, at the present time, conducted in most ways like schools having all grades. The two kinds of schools have the same course of study for the 7th and 8th years, the same departmental organization, and practically the same methods of classifying and promoting pupils. In a word, the intermediate school, with slight modifications, is merely an enlargement of the 7th and 8th grades of schools having all classes. But to limit the activities of the intermediate school in this way is to fail to take advantage of important educational opportunities it may be made to afford.

<sup>1</sup> According as the use of shops and cooking rooms in schools having all grades to instruct other than 7th and 8th-year pupils is disregarded or taken into account.

<sup>2</sup> See second note, page 32.

<sup>3</sup> See note on page 33 and first note on p. 37.



These educational opportunities suggest themselves when we consider the wisdom of offering to 7th and 8th-year pupils more than one course of study; of a better adaptation of the instruction to the two sexes; of a more thoroughgoing classification of pupils; of a more just method of promotion, and of a better adaptation to the needs of 7th and 8th-year pupils of certain general features of school organization.

### **Opportunity to offer different courses of study**

The wisdom of offering more than one course of study in the elementary schools of New York City to 7th and 8th-year pupils has been discussed elsewhere.<sup>1</sup> By reason of the large number of pupils in attendance in the same grade, the intermediate school affords peculiar opportunity for different courses of study. As is pointed out in our discussion on the course of study, these courses meet the needs of three classes of pupils: (a) those who are planning to go to an "academic" or "general" high school, and perhaps to college; (b) those who look forward to entering a vocational high school; and (c) those who intend, as soon as they are fourteen years old, to enter an elementary vocational school, or who must leave or choose to leave school as soon as they are legally exempt from further school attendance. In all these courses the separate educational needs of the two sexes, as well as their common needs, should be provided for, as is indicated in the next section.

### **Opportunity to adapt the instruction to the two sexes and to the requirements of high schools and vocational schools**

The differences between boys and girls point to the necessity of differences between the instruction they should receive. The desirability of making the instruction of boys and girls different is already recognized in providing for boys manual training, and for girls cooking and sewing; also in providing different physical training for boys and for girls. This differentiation of work, however, should be carried much further in the elementary school than it now is. The intermediate school affords particular opportunity to differentiate, according to the needs of the two sexes, both in the general scope of the different courses of study and in their details.

Good opportunity is also afforded by the intermediate school to experiment with courses of study, to the end that these may on the one hand be adapted to the capacities, desires, and intentions of different groups of children, and may on the other hand be brought to articulate so closely with the courses in high schools and vocational schools, that pupils graduating from the intermediate school are well prepared to

<sup>1</sup> For discussion of the necessity of more than one course of study, see Report on Promotion, Non-Promotion and Part-Time, pp. 49-51.

profit by and do the work of the particular kind of subsequent school they may enter.

Again, by reason of the number of children in intermediate schools who are approaching the time when they must choose a pursuit, and who need advice that they may choose wisely, and by reason of the number of teachers having to deal only with such children, the intermediate school affords the best possible opportunity to experiment and to develop systematic vocational guidance.

Hence, in judging of the worth of the intermediate school the opportunity it affords to adapt the instruction to the needs of the two sexes, and to the needs of different groups of children, and to lay the foundation for work in a subsequent school should be given serious consideration.

#### **Opportunity to classify pupils according to ability**

In schools having all grades, it is impracticable, by reason of numbers, to group pupils within a particular grade, to any considerable extent, according to ability. Children of widely different capacity must, in consequence, work in the same class, with the inevitable result that one part of the class is kept comfortably busy; a second part has too much to do, and a third part too little.

But, so far as possible, every child has the right to work at all times up to his capacity. The intermediate schools can supply such conditions of work more easily than other schools; for, by reason of numbers, the pupils of a given grade may at least be grouped as slow pupils, normal pupils, and exceptionally bright pupils, and the instruction adapted to the requirements of each group.

Further, in schools having all grades, when a pupil is not promoted, he must, because of the relatively few failing in a given grade, take the work over with pupils who are in the class for the first time. The pupil consequently has no opportunity to pay special attention to the particular subjects in which he has failed. In the intermediate school, however, it is possible, by reason of numbers, to bring together into one class children who have failed in the same branches. Such a grouping affords opportunity to help pupils where there is need, and hence to strengthen them where they are weak.

#### **Opportunity for promotion by studies**

In schools having all classes, children are promoted by grades. Hence, if a pupil is not advanced, he must go over a second time all the work of the grade instead of having to repeat only the studies in which he is deficient.

The pupil has the right, so far as possible, to be advanced as rapidly or as slowly as his several abilities permit or require. His advancement in all studies ought, therefore, not to be conditioned by his weakness in

certain branches. Whether promotion by grades is necessarily inherent in schools having all grades should be made the subject of consideration. However that may be, the intermediate school can readily adopt such a system of promotion that each child may go forward whenever he is prepared to advance. That is, the intermediate school can be so organized that promotions are made by studies rather than by grades. The administrative difficulties of promotion by studies should be no greater in the intermediate school than they are in the high school; and no one would think of promoting high-school pupils otherwise than by subjects.

**Opportunity to adapt to the needs of 7th and 8th year pupils certain general features of school organization**

It is well understood that at about the age of twelve or fourteen years boys and girls need a kind of care and discipline different from the care and discipline of younger children. In schools having all classes, relatively the same organization prevails throughout the school. To be sure, certain modifications are made in favor of 7th and 8th-year pupils—for example, departmental teaching—but these modifications must necessarily be few. The intermediate school, however, having to do with 7th and 8th-year pupils, can adapt its organization to the particular needs of children passing from late childhood into the period of early youth.

The intermediate school may be so organized that larger place is given than it is possible to give in the average size school having all grades to athletics and competitive games, to club work, and to social activities; larger opportunity can be given for pupil self-government; larger individual freedom of thought and action can also be permitted; in a word, the intermediate school can be so organized, such opportunity can be given for the expression of spontaneity, and for the exercise of initiative, judgment, and self-direction, that school life will make a stronger appeal to 7th and 8th-year pupils than it now does, as a rule in most schools. The need of this stronger appeal is revealed in the fact that 4,218 7A-8B boys and 3,948 7A-8B girls, a total of 8,166 7A-8B pupils, left the elementary schools of the City of New York during the spring term of 1911 without completing these grades.<sup>1</sup>

**Probable effects of realizing the foregoing possibilities**

Certain of the foregoing possibilities are now being realized, to a limited extent, in intermediate schools—notably in Public School Number 62; but should different courses of study be introduced; should a differentiation of the instruction for boys and girls be made and the courses

<sup>1</sup> From reports made to the Committee on School Inquiry, June, 1911.

of study be made to articulate with high schools and vocational schools; should pupils within a grade be grouped according to ability; should promotion by studies be inaugurated; should an organization be developed, that is adapted to the particular needs of 7th and 8th-year pupils, and should the effects of these innovations be studied carefully for a series of terms, it would be found, it is believed, that such an intermediate school would not only be far more efficient in caring for 7th and 8th-year pupils than a school having all grades, but also far more efficient than are the intermediate schools already established.

#### **D—Location and Establishment**

Finally, there are two fundamental conditions that directly influence the location of an intermediate school: First, there must be adequate school provision within ready reach of the 1A-6B pupils who would live in the immediate vicinity of the intermediate school, and, second, there must be a sufficient number of 7A-8B pupils within ready walking distance to justify the establishment of such a school.

A serious difficulty to be reckoned with in the establishment of intermediate schools is the attitude of the principals and of the teachers in the schools affected. The schedule of salaries is higher for 7A-8B than for 1A-6B teachers; also, in schools having from six to seventeen rooms in which there are grades above the 6B, the head teacher or assistant principal in charge is relieved from teaching a class. There is necessarily, however, no such exemption in schools having the same number of rooms but in which the highest grade is the 6B.<sup>1</sup> It is, therefore, only natural, when the 7A-8B grades are removed from given schools in order to organize an intermediate school, that the principals and the teachers of these schools feel that their professional standing is unfavorably affected. Unless some way is found to allay this feeling it will continue to make difficult the active extension of the intermediate school. In planning to increase the number of intermediate schools, there is also the question, which should be carefully considered, of the effect of removing from a school seventh and eighth-year pupils. The question to be considered is whether the removal of seventh and eighth-year pupils affects favorably or unfavorably the conduct, the ambition, and the work of younger children.

#### **E—Recommendations**

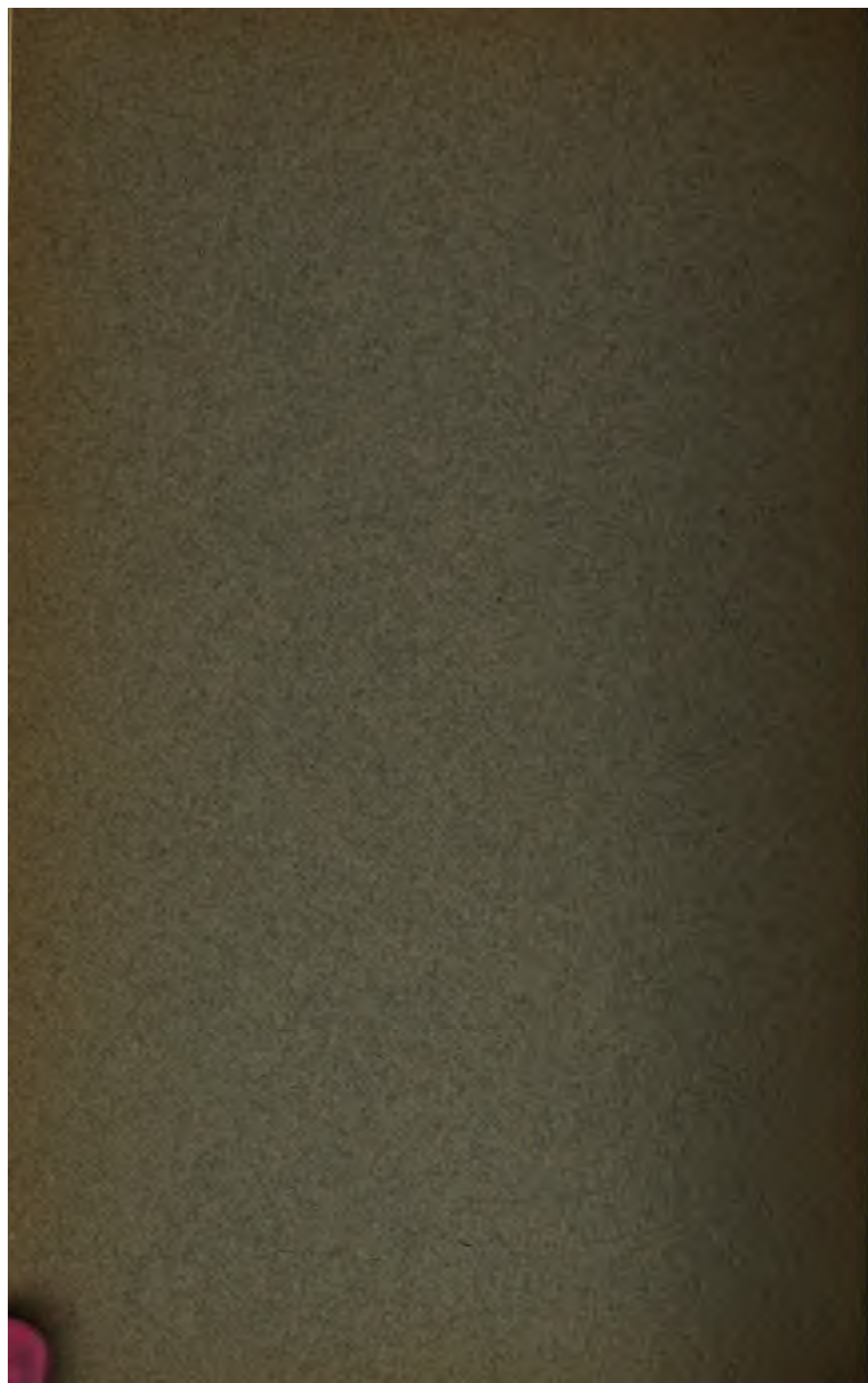
In view of the educational and economic efficiency of the intermediate schools now in existence, when judged on the basis of the data collected for the February-June term, 1911, and in view of the educational possibilities of such schools, we recommend:

<sup>1</sup> Schedule of Teachers' Salaries, 1912, pages 8 and 9.

1. That similar data be collected for a number of terms and should the foregoing findings be substantiated, we would further recommend:
2. That an immediate study be made by the Board of Education of all localities where conditions seem favorable to the establishment of intermediate schools.
3. That intermediate schools be established wherever conditions are favorable.
4. That, when established, intermediate schools should not only serve the purpose they now serve, but should be planned and carried on so as to aim at the fuller realization of the educational opportunities they may be made to afford, as outlined in this report.
5. That special care be taken to maintain sympathetic relations between the intermediate schools and the contributing schools on the one hand, and the closest articulation possible with high schools and vocational schools on the other; and that the peculiar opportunity to develop systematic vocational guidance be fully utilized.
6. That complete records of the work and cost of such schools be kept and that these records be used to improve intermediate schools and to judge of their efficiency.









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## INTERIM REPORT

# Committee on School Inquiry Board of Estimate and Apportionment

### *Embracing*

1. Letter of Transmittal
2. Excerpt from "The Report as a Whole"  
By PROFESSOR PAUL H. HANUS
3. Report upon Promotion, Non-Promotion, and Part  
Time  
By DR. FRANK P. BACHMAN

### *Committee on School Inquiry*

JOHN PURROY MITCHEL

*President of the Board of Aldermen*

WILLIAM A. PRENDERGAST

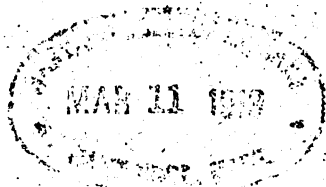
*Comptroller*

CYRUS C. MILLER

*President of the Borough of the Bronx*

CITY OF NEW YORK

1911-1912



Prof. P. H. Hanus,  
Cambridge



FEBRUARY 1, 1913.

*To the Honorable, The Board of Estimate and Apportionment:*

GENTLEMEN:—The Committee on School Inquiry herewith transmits to your Board a section of the report upon the educational aspects of the school inquiry, being a monograph by Dr. Frank P. Bachman, Assistant Superintendent of Schools of Cleveland, Ohio, upon Promotions, Non-Promotions, and Part-Time. Prefixed thereto is printed the section of "The Report as a Whole," prepared by Prof. Hanus, which deals with the subject matter of the accompanying monograph.

The monograph transmitted was first sent to the printer by Prof. Hanus in the form of manuscript on July 1, 1912, was transmitted by the printer to the writer and Prof. Hanus for revision on July 29, 1912. Since that time, the monograph has been undergoing revision by the writer and by Prof. Hanus and correction by the printer, and was received by your Committee, with the final approval of the writer and of Prof. Hanus, on January 7, 1913.

Respectfully submitted,

JOHN PURROY MITCHEL,  
*President Board of Aldermen.*

WM. A. PRENDERGAST,  
*Comptroller.*

CYRUS C. MILLER,  
*President, Borough of The Bronx.*  
Committee on School Inquiry.



EXCERPT FROM

## **"THE REPORT AS A WHOLE"**

BY

PROFESSOR PAUL H. HANUS

### **(5) Promotions, Non-Promotions, and Part-Time**

Prior to the commencement of our work, President Mitchel had asked Superintendent Maxwell to furnish certain data concerning promotion, non-promotion, and part-time, with a view to determining whether the alleged causes of non-promotion reported by the City Superintendent were real causes; to what extent part-time was responsible for non-promotion; and whether part-time was otherwise an evil. When our work began, the data President Mitchel had asked for were not yet collected; and we were asked to go on with the investigation. Our first task, therefore, was the planning, collecting, and tabulating of the desired data covered by fourteen questions pertaining to each child in the elementary schools of the entire city.<sup>1</sup> The tables prepared by Superintendent Maxwell calling for the desired data to be supplied by the principal of each school were sent out as revised by us as soon as possible, and were returned to us, filled as requested, about July 10, 1911. Then followed the further task of tabulating this huge mass of data, which, with our clerical staff, required several months; and finally the interpretation of the data as collected, which again required several months of labor by the one associate whom I had assigned to this statistical work in addition to other work. Long before this work was finished, it was clear that the data collected would not furnish conclusive answers to the questions President Mitchel had raised, and in our report we have expressly asserted this fact. Nevertheless the data collected do supply valuable information never before collected, some of which has been utilized by us in defining and suggesting other important problems. Some of this material will be considered in this summary.

It is obviously undesirable to reproduce here any of the statistical details on which our findings and recommendations are based. For such details the reader is referred to the report itself. We found that in all the boroughs the rate of promotion was lowest in the 1A grade, rang-

<sup>1</sup> The investigation was, however, restricted by us to children in regular classes and to promotions at the end of the February-June term, 1911.

## EDUCATIONAL INVESTIGATION

ing from 75.37 to 76.97 per cent.; and highest in the 8B grade, ranging from 93.71 to 97.25 per cent. In the remaining grades the rate of promotion ranged from about 88 to about 91 per cent. The problem of increasing the rate of promotion in the 1A grade is primarily a question of getting the pupils into school at the beginning of the term and keeping them there.

In spite of the uniformity in the rate of promotion throughout the city, there is evidence that, on the whole, promotions were made with discretion and not on a merely mechanical or numerical basis. Nevertheless there was a decided increase in the rate of promotion over preceding terms—amounting to 4.56 per cent. in a single year. This increase was probably due, in part, to pressure by the City Superintendent “to secure more generous promotions,” although he took pains to impress on principals and teachers that pupils should not be promoted who are unfit to do the work of the next higher grade. The City Superintendent was justified in his endeavor to increase the rate of promotion because it is desirable to make the standard of promotion such that pupils in large numbers can enjoy the advantages of the upper grades. (These grades emphasize literature, history, geography, and other studies and activities pertaining to “life,” while the earlier grades necessarily emphasize the school arts.) Such standards should, however, be explicitly described and authorized, not merely implicitly recognized and therefore vaguely approved.

Conditions favorable to a maximum rate of promotion have not been studied and provided for. Such conditions must be based on investigations over a sufficient length of time and should include the best age of entrance to the elementary school; the age at which children need a régime of instruction and management different from that appropriate to the elementary school; the number of normal children entering on and completing the present course of study; the actual time required by children to complete the present course of study with the standards now approved, together with a clear and adequate statement of what these standards are; the actual length of time normal children remain in school, including their attendance on schools in other places, and the length of their attendance between the ages of six and fourteen years; what groups of children of varying abilities and needs requiring different courses of study should be formed. And we recommend that there be as many different courses in each school as there are groups of such children; that the actual total length of such courses as revealed by investigation and the standards adhered to be such that each normal child in regular attendance can complete one of these courses between the ages of six and fourteen.

As promotions were made in the February-June term of 1911, over-size classes, i. e., classes having more than 50 pupils, contributed but slightly, if at all, to non-promotion, i. e., to congestion. This statement does not mean, however, that educational opportunity and achievement

## THE REPORT AS A WHOLE

were as good in classes over 50 as in classes under 50. We recommend that special investigations be made into the educational efficiency of classes of varying sizes—i. e., *how much* less efficient over-size classes are than smaller classes.

Absence is a very large factor in increasing the number of non-promotions and hence in increasing congestion. The corresponding responsibility of all concerned to get children into school and to keep them there is therefore clear.

Over-age of children, i. e., the length of time children are behind the grades they ought to be in as determined by the accepted age-grade standards, is an important factor in increasing the number of non-promotions, and hence congestion.

The presence of pupils unable to use the English language does not materially affect the rate of promotion of a class as a whole, because of the relatively small number of such pupils in a class; but the progress of such pupils is decidedly less than that of the other pupils, particularly in the 1A grade.

A conclusive answer to the question whether part-time is an evil in all grades, or only above the 1B grade, would require investigations exceeding the limits of time and means at our command. Such investigations should measure, among other things, the effect of part-time as compared with whole time on the health and physical development of the children; the comparative achievements of the children in the two kinds of classes; and should study the differences in the interests, habits, and conduct, in school and out, of the children in the two kinds of classes.

Our data enabled us to deal with only one phase of the educational aspect of the problem, namely, the rate of promotion in the two kinds of classes. We found that in the twelve grades in which there were both whole-time and part-time classes (part-time was practically confined to the grades 1A to 5B inclusive), the rate of promotion in whole-time classes was higher than in part-time classes in nine grades and lower in three (4A, 4B, and 6B). This lower rate, it should be noted, is most significant in the lower grades, because 88.84 per cent. of all part-time pupils are in the 1A to 3B grades, and it is precisely in those grades that part-time has been supposed to have least effect on the progress of the pupils. There is no reason to suppose that the lower rate of promotion in the 1A to 3B grades in part-time classes is indicative of higher standards than in the whole-time classes; on the contrary, part-time means congestion, and congestion of itself tends to forced promotions, i. e., to a higher rate than in whole-time classes. We found also that, although the rate of promotion was lower in part-time classes taken together than in whole-time classes, the *direct effect* of part-time on promotions was small, because of the relatively small number of non-promotions among the total number of part-time pupils. We could not inquire into certain possible indirect effects such as indif-

## EDUCATIONAL INVESTIGATION

ference to school work, bad conduct, and truancy, which deserve careful investigation. We found also that part-time was a very small factor in promoting congestion, if its influence was felt at all.

Considering the rate of promotion in the different kinds of part-time classes, we found: that the rate of promotion was higher in Ettinger part-time classes than in the others, and that, on the whole, more pupils were promoted in these part-time classes than in whole-time classes. This last fact should not be taken to mean, however, that Ettinger part-time classes are educationally superior to whole-time classes; for a higher rate of promotion is not alone sufficient evidence of such superiority.

Summarizing our findings, based on the available data—the data for the February-June term of 1911 only, we find that, considering each of the alleged causes of non-promotion separately, part-time and over-size of classes are responsible for relatively few non-promotions; that irregular attendance is a decided factor in increasing the number of non-promotions; that late entrance to school and sluggish mentality as expressed in retardation are material factors in causing non-promotion; that inability to use the English language increases decidedly the number of non-promotions in the relatively small number of pupils affected.

In view of the slightly lower rate of promotion for over-size classes, but more particularly because of the acknowledged educational disadvantages of such classes, the strong disapproval of part-time classes by the general public, and the prevailing practice in other cities, we recommend: that all classes having more than 50 pupils should be reduced to classes of 45 pupils; and that all part-time classes be eliminated. In view of the decidedly lower rate of promotion of retarded pupils, and for pupils unable to use the English language, we recommend: that classes in which special attention shall be given to retarded pupils be provided at least for all pupils two years and more behind their grades; that the course of study be specially modified for such pupils; and that classes for the special instruction of pupils unable to use the English language be provided, at least, for all such pupils in grade 1A.

To carry these recommendations into effect would require a very large sum of money. Judging by the conditions existing in the February-June term, 1911, we estimate that not less than \$13,750,000 would be required for new buildings, together with an annual expenditure of probably \$270,000 for upkeep and maintenance, and an annual expenditure for teachers' salaries of not less than \$496,000.

Widespread dissatisfaction within and without the school system, with part-time as an expedient for relieving congestion, is, however, steadily exerting pressure on the Board of Estimate for appropriations sufficient to build the school buildings required. Although, as was said above, the time and means at our disposal could not enable us to ascertain whether part-time is an evil, we share the view widely held that every American school child is entitled to a full day's schooling, under



## *THE REPORT AS A WHOLE*

the most favorable conditions that can be provided for his present and future welfare; and since further delay will merely make present conditions worse, we recommend that, although the cost of such schooling for the vast number of children in New York is very large, the city begin at once to appropriate the necessary funds.

One important item of information collected by us is the number of children who leave school without completing the course. We found that, during the February-June term of 1911, 30,995 pupils in regular classes left school. Of these, 18,134 were either subject to the compulsory attendance law or were under seven years of age, hence they will probably return to school; 12,861 doubtless left school permanently. These are large numbers. Moreover, there is no reason to believe that the number leaving in the term under consideration is exceptional, and the causes of pupils leaving should be thoroughly investigated. We accordingly recommend, as a preliminary step in the reduction of school losses, that the reports from the several schools on pupils leaving and the reasons therefor be collected and tabulated, term by term, for the city, so that these losses may be known and faced; and the causes therefor may be eradicated so far as they are found to lie within the schools.



REPORT ON  
EDUCATIONAL ASPECTS OF THE  
PUBLIC SCHOOL SYSTEM

OF THE CITY OF NEW YORK

TO THE

COMMITTEE ON SCHOOL INQUIRY  
OF THE BOARD OF ESTIMATE  
AND APPORTIONMENT

PART II

*Subdivision I*

*Elementary Schools*

SECTION F.—PROBLEMS IN ELEMENTARY SCHOOL ORGANIZATION  
AND ADMINISTRATION

III. Promotions and Nonpromotions, and Part Time

BY

FRANK P. BACHMAN, PH.D.

Formerly Assistant Superintendent of Schools, Cleveland, Ohio

CITY OF NEW YORK  
1911-1912



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## PROMOTION, NON-PROMOTION, AND PART-TIME

### Introductory

The State, through its Compulsory Education Law, seeks to guarantee to each child of the City of New York, by the time he is fourteen years old, an education equal to graduation from the elementary school.<sup>1</sup> Physical and mental defects, conditions in the home and in the school, which militate against children completing the elementary school course of study, are, therefore, of both social and educational interest.

The factors which contribute to prevent children from graduating from the elementary schools of the City of New York by the time they are fourteen years of age, as is contemplated by the Compulsory Education Law, fall under three heads: Late entrance into school, slow progress through the school, and late entrance and slow progress together.

Failure to complete the elementary school course of study by the fourteenth year, in so far as this is due to slow progress, is the direct result of the child's failure to secure regular promotion. To determine the causes which prevent children from receiving promotion, eight committees were appointed, in the fall of 1909, by the City Superintendent of Schools. These eight committees were in substantial accord in reporting the following, among others, as the chief causes of failure on the part of pupils to secure regular promotion:<sup>2</sup>

"PART-TIME, which prevents pupils from doing the work of the lower grades thoroughly."

"EXCESSIVE SIZES OF CLASSES, which prevent teachers giving necessary individual instruction."

"IRREGULAR ATTENDANCE. Due to poor home conditions; looseness of parental control; ignorance of parents; lack of opportunities for home study; poverty of home, requiring pupils' assistance; sickness of other members of the family; lack of proper clothing; feeble health of individual pupils; poverty of surroundings."

"LATE ENTRANCE INTO SCHOOL, due to two causes: The presence of immigrant children, and the fact that many children are sent to private schools before they enter the public schools."

<sup>1</sup> See Section 622 of Compulsory Education Law.

<sup>2</sup> Twelfth Annual Report of the City Superintendent of Schools, of the City of New York, pages 80 and 81.

"SLUGGISH MENTALITY. Sometimes this feature takes the form of positive mental defect, and sometimes it characterizes pupils as slow in receptivity and response. Sometimes it takes the form of moral defects, such as dishonesty, lying, and cheating, which are intensified by improper reading, the following of bad examples, and petty defiance of law in the streets."

"IGNORANCE OF THE ENGLISH LANGUAGE, due to foreign birth and to the fact that English is not the language of the home."

From conference with members of the foregoing committees, it was learned that no comprehensive study of the causes of non-promotion was made by these committees, and that their conclusions were based on the personal impressions of the several members.

The studies made of the causes of non-promotion up to the present time may be characterized as descriptive studies, or as preliminary surveys. They are, nevertheless, very valuable. Their worth lies, however, in focusing the attention of teachers and superintendents on the problem of non-promotion, in suggesting probable causes, and in indicating where improvements should be made and the need of further investigation, rather than in having determined finally the causes of non-promotion and the extent to which non-promotion is due to each cause.

President Mitchel addressed a letter, on May 10, 1911, to President Winthrop, of the Board of Education, requesting the following information, by grades, for the February-June term, 1911:

1. The name of each child.
2. The sex of each child.
3. Age on June 30, 1911, computed from registration card.
4. Whether promoted on January 31, 1911.
5. Whether failed of promotion January 31, 1911.
6. Whether promoted between February 1 and June 30, 1911.
7. Whether promoted on June 30, 1911.
8. Whether on register June 30, 1911.
9. Whether regular or irregular in attendance.
10. Number of days absent.
11. Whether over-age, and how much for grade.
12. Whether in forenoon or afternoon part-time class.
13. Whether in class having less than thirty-five pupils; thirty-five to forty; forty to fifty; fifty to sixty, and over sixty.<sup>1</sup>
14. Whether unable to use the English language.

In compliance with President Mitchel's letter, Superintendent Maxwell prepared two blanks for the collection and tabulation of the information requested—one for the use of the teachers, and one for the principal's summary of the data on the teacher's blank.

<sup>1</sup> Taken from Page 4 of President Mitchel's letter to President Winthrop.

On examination, we found that the form of the blanks, as prepared, rendered it impracticable to tabulate the data in more than one way; it was also found that the data were not grouped with reference to promotion and non-promotion, and that the directions for the use of teachers and principals in filling the blanks were inadequate. Accordingly, a revision of Superintendent Maxwell's blank was immediately undertaken.

With the time at our disposal—not more than a few days, because the end of the school year was near at hand—it was impossible to change the proposed method of collecting the data so that the data might be readily tabulated in other desirable ways. Changes were, however, made in the teachers' blank so that practically all the items of information requested by President Mitchel were called for. The principals' blank was revised so that the data, when tabulated, would show the number of "repeaters" in each grade; also show by grades, and whether promoted or not promoted, the number of children in each kind of class (whole-time class or part-time class), the number in the classes of each size (in classes under thirty-five, thirty-five to forty, . . . ), the number absent less than ten days, ten to twenty days, . . . , the number of each age (under normal, normal, less than one year over normal, . . . ), and the number unable to use the English language. The directions to teachers and principals were likewise revised, and a number of new directions were added. The revised blanks, along with the amended directions, were submitted to Superintendent Maxwell for criticism and suggestion. Copies of these blanks in their final form, together with a list of supplementary directions, are on file with the Committee on School Inquiry.

Superintendent Maxwell was asked to assume the responsibility for distributing the blanks to the schools. He did so, and they were in the hands of the teachers by the beginning of the last week of June. He had sent with the blanks a letter in which he called attention to the necessity of exercising care and dispatch in filling the blanks. By July 10th nearly all the blanks had been filled, and received, and they have been filed with the Committee on School Inquiry.

The injunctions to fill the blanks promptly and accurately were heeded by the principals, so far as the time limit was concerned, but the blanks contained many errors, which it took our staff of four tabulators—later five—about four weeks to correct before the tabulation of the data could be commenced. There were 488 principals' reports. Of these, 179 were correct. 309, or 63 per cent., contained errors. Of the 309 incorrect reports, 186 contained slight inaccuracies. 123, or 25 per cent., contained errors of so serious a nature as to compel reference to the teachers' reports, and these, in turn, were, in many instances, so faulty as to need reconstruction wholly or in part.<sup>1</sup>

Even when due allowance is made for the haste with which the

<sup>1</sup> A more complete statement concerning the errors in these blanks has been filed with the Committee.

blanks were filled, owing to lateness of date (the last week of the term), there is no excuse for so many errors. The City Superintendent has found that the statistical returns made to him contain similar errors, and that much time is consumed in correcting them. Such errors are wasteful, and teachers and principals should learn to minimize them.

The correction of the errors made by teachers and principals in filling the blanks, the tabulation of the data, and the necessary computation occupied our staff of clerks continuously until December 4, 1911.<sup>1</sup>

The validity of the data collected for this investigation is in no way affected by the method of making promotions in vogue in the elementary schools of the city, or by whether a given child should or should not have been promoted. The facts collected only have to do with, and only throw light upon promotions and non-promotions as they were made at the end of the February-June term of 1911.

It was expected by those who planned this investigation<sup>2</sup> that, in addition to furnishing valuable information, the collection of the foregoing data would supply the basis of drawing conclusions with reference to whether or not the causes, as reported by the eight committees mentioned above, are causes of non-promotion; and also to what extent non-promotion is due to each cause.

The data collected, and herewith reported in the following tables, supply no adequate basis for *final* conclusions. Because, although there appears to be, for example, a direct connection between the per cent. of promotion and the number of days absent, there is no way of telling from the table on absence whether part of the difference in the per cent. of promotion might not be due to causes other than absence—to the fact that pupils were in different kinds of classes (in part-time classes or whole-time classes), or in classes of different sizes, or were of different ages, or were of different nationalities. . . . Until the retarding force of these and other probable causes is equalized or neutralized—i. e., until the pupils in the several groups, when grouped, for example, on the basis of the number of days absent, are from the same kind of class, from classes of the same size, are of the same age, of the same sex, of the same nationality—until this is done—and it was impossible to do it in this investigation<sup>3</sup>—it is unscientific to draw more than *tentative* conclusions about the causes of non-promotion and the retarding force of particular causes.

Though no *final* conclusions can be properly drawn from the collected data, with regard to the causes of non-promotion or with reference to what extent non-promotion is due to each cause, *these data do supply the basis for tentative conclusions*, and for certain recommendations, and supply, also, a fund of valuable information, as will appear

<sup>1</sup> By that time, other important inquiries were under way, and we had entered on the period of uncertainty about the continuance of the inquiry. Work on this investigation into promotions and non-promotions was, therefore, after conference with President Mitchel, deferred. The work was resumed about February 1, 1912.

<sup>2</sup> President Mitchel's letter to President Winthrop, dated May 10, 1911.

<sup>3</sup> See remarks on page 5 on the forms on which these data were collected.

in this report. The tables show by grades, for the February-June term of 1911, the following:

1. They show, for the first time for the City of New York, the number of pupils (in regular classes), in each kind of class (whole-time class or part-time class); the number of pupils in classes of different sizes (in classes under thirty-five, thirty-five to forty, forty-one to fifty . . . .); the number of days each pupil was absent (absent ten days or less, eleven to twenty days, twenty-one to thirty days); the number of pupils unable to use the English language, and the number of pupils leaving school.<sup>1</sup> Only as such information is at hand is it possible to have definite knowledge of the schools and of the conditions affecting their work.

2. They show, for the first time for the City of New York, the number of pupils promoted and the number not promoted in the classes of each size, in each kind of class (whole-time class and part-time class), also the number promoted and not promoted for each of the several periods of absence, for each of the several ages, and among those able and unable to use the English language.

3. They show that there is a definite relation (in regular classes) between promotion and non-promotion, and size of class, absence, age, ability to use the English language, and kind of class—when each is considered by itself.

4. They also reveal school conditions, i. e., over-size classes, a large amount of absence, the presence in large numbers of over-age pupils in regular classes, which should be corrected, and hence supply valuable data for administrative action.

The register in regular classes at the end of the February-June term, 1911, the number promoted, and the number not promoted—the basis of this report—were, for the several grades and the sexes, as follows:

Grades	On Register Before Promotion June 30, 1911			Promoted on June 30, 1911			Not Promoted on June 30, 1911		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
1A	21,898	21,114	43,012	16,726	15,972	32,698	5,172	5,142	10,314
1B	25,302	24,530	49,832	22,358	21,862	44,220	2,944	2,668	5,612
2A	20,370	19,237	39,607	18,061	17,209	35,270	2,309	2,028	4,337
2B	22,488	22,120	44,608	20,336	20,071	40,407	2,152	2,049	4,201
3A	20,264	19,916	40,180	18,101	17,978	36,079	2,163	1,938	4,101
3B	21,496	21,415	42,911	19,373	19,564	38,937	2,123	1,851	3,974
4A	19,560	19,013	38,573	17,437	17,260	34,697	2,123	1,753	3,876
4B	20,174	19,735	39,909	18,110	17,578	35,688	2,064	1,857	3,921
5A	18,556	18,267	36,823	16,391	16,329	32,720	2,165	1,938	4,103
5B	17,653	18,382	36,035	15,703	16,634	32,337	1,950	1,748	3,698
6A	16,351	16,522	32,873	14,532	14,730	29,262	1,819	1,792	3,611
6B	15,632	15,502	31,134	13,898	13,949	27,847	1,734	1,553	3,287
7A	13,579	14,088	27,667	11,898	12,439	24,337	1,681	1,649	3,330
7B	12,176	12,615	24,791	10,891	11,203	22,094	1,285	1,412	2,697
8A	10,248	10,864	21,112	9,155	9,745	18,900	1,093	1,119	2,212
8B	9,587	9,958	19,545	9,002	9,458	18,460	585	500	1,085
Total . . . .	285,334	283,278	568,612	251,972	252,281	504,253	33,362	30,997	64,359

The data for this table were computed from reports to the Committee on School Inquiry, June, 1911.

<sup>1</sup> Data on the ages of pupils, in relation to grade, have been given annually since 1904.

### I.—Promotion and Non-Promotion: General Problem

In the elementary schools of the city, the regular time for making promotions and non-promotions is the last day of the school term. Promotions are, however, also made during the course of the term. The total number of promotions for a term is, therefore, the sum of the promotions made during the term and those made on the last day of the term.<sup>1</sup> *The data herein presented, it should be observed, relate only to promotions and non-promotions made at the end of the term, and it should also be noted that these data have to do only with promotions and non-promotions in regular classes<sup>2</sup> of the elementary school, exclusive of the kindergarten.*

#### 1. Rate of Promotion in Each Borough and in the Greater City

The City of New York includes the Boroughs of Manhattan, Brooklyn, the Bronx, Queens, and Richmond. Table I gives for each of the boroughs and for the Greater City the per cent. of promotion by grades at the end of the February-June term, 1911:

Table I

Grades	Per Cent. of Promotion in Borough of Manhattan	Per Cent. of Promotion in Borough of Brooklyn	Per Cent. of Promotion in Borough of The Bronx	Per Cent. of Promotion in Borough of Queens	Per Cent. of Promotion in Borough of Richmond	Per Cent. of Promotion in Entire City of New York
1A	75.37	76.49	76.13	76.97	75.75	76.02
1B	88.88	88.34	90.13	88.40	86.92	88.74
2A	88.90	88.76	90.24	89.28	89.76	89.04
2B	91.28	89.90	90.25	90.52	91.08	90.58
3A	90.08	89.54	89.46	90.66	87.12	89.79
3B	91.25	89.94	90.74	91.60	91.64	90.74
4A	90.51	89.38	89.58	90.68	88.26	89.95
4B	90.76	89.58	89.09	91.43	90.05	90.18
5A	89.52	88.21	88.45	89.93	84.91	88.86
5B	90.32	89.06	88.94	91.02	89.82	89.74
6A	89.01	89.16	88.19	89.86	87.67	89.02
6B	90.07	89.08	88.52	89.32	89.53	89.44
7A	88.31	87.08	88.82	89.31	87.21	87.96
7B	89.32	88.26	90.37	90.13	89.92	89.12
8A	89.92	88.78	89.15	91.28	90.87	89.52
8B	93.71	94.45	95.38	96.14	97.25	94.45
Total.....	88.96	88.22	88.71	89.47	88.30	88.68

The data for this table were computed from the reports to the Committee on School Inquiry, June, 1911.

<sup>1</sup> See Annual Report of the City Superintendent of Schools for 1910-11, Table XXXVII, pp. 66 and 67.

<sup>2</sup> Regular classes are to be distinguished from "C" classes (for non-English-speaking pupils); from "D" classes (for over-age pupils preparing for employment certificates); from "E" classes (for over-age and retarded pupils), and from classes for defective children.

The difference between the per cent. of total promotion in the several boroughs, it will be observed, is small. The lowest per cent. of total promotion was, in Brooklyn, 88.22 per cent., and the highest, in Queens, 89.47 per cent.—a variation of but 1.25 per cent.

In each of the boroughs the lowest per cent. of promotion was in the 1A, and the highest in the 8B grade, but, within the same grade, the rate of promotion varied little among the boroughs. The per cent. of promotion ranged in the

1A	from 75.37% to 76.97%—a variation of 1.60%
1B	" 86.92% " 90.13%—" " " 3.21%
2A	" 88.76% " 90.24%—" " " 1.48%
2B	" 89.90% " 91.28%—" " " 1.38%
3A	" 87.12% " 90.66%—" " " 3.54%
3B	" 89.94% " 91.64%—" " " 1.70%
4A	" 88.26% " 90.68%—" " " 2.42%
4B	" 89.09% " 91.43%—" " " 2.34%
5A	" 84.91% " 89.93%—" " " 5.02%
5B	" 88.94% " 90.32%—" " " 1.38%
6A	" 87.67% " 89.86%—" " " 2.19%
6B	" 88.52% " 90.07%—" " " 1.55%
7A	" 87.08% " 89.31%—" " " 2.23%
7B	" 88.26% " 90.37%—" " " 2.11%
8A	" 88.78% " 91.28%—" " " 2.50%
8B	" 93.71% " 97.25%—" " " 3.54%

If the several grades, exclusive of the 1A and the 8B (fourteen), are grouped according to per cent. of promotion, the distribution in each of the boroughs is as follows:

Boroughs	Number of Grades Promoting Less Than 87%	Number of Grades Promoting from 87% to 88%	Number of Grades Promoting from 88% to 89%	Number of Grades Promoting from 89% to 90%	Number of Grades Promoting from 90% to 91%	Number of Grades Promoting 91% and Above
Manhattan.....	0	0	3	4	5	2
Brooklyn.....	0	1	5	8	0	0
The Bronx.....	0	0	5	4	5	0
Queens.....	0	0	1	5	4	4
Richmond.....	2	3	1	4	2	2
Total Number of Grades Promoting a Given Per Cent. ....	2	4	15	25	16	8

In the great majority of the grades in the schools of each borough, it will be noted, the per cent. of promotion ranged between 88 per cent. and 91 per cent., while the most common per cent. of promotion was from 89 per cent. to 90 per cent.

In the Greater City, as in the several boroughs, the lowest per cent.

of promotion was in the 1A, and the highest in the 8B grade. In the remaining fourteen grades the rate of promotion was from 87 per cent. to 88 per cent., in one grade; from 88 per cent. to 89 per cent., in two; from 89 to 90 per cent., in eight; and from 90 per cent. to 91 per cent., in three. With the exception of the 1A and the 8B grades, the most frequent rate of promotion, both in the Greater City and in the boroughs, was, therefore, from 89 per cent. to 90 per cent.

## 2. Rate of Promotion by Sex

While in the schools of the city there are classes in which boys and girls are taught together, the prevailing custom, even in the lower grades, is to segregate the sexes. Table II gives by grades the per cent. of boys and the per cent. of girls promoted at the end of the February-June term, 1911; also the per cent. of girls promoted over the per cent. of boys promoted:

Table II

Grades	Rate of Promotion		Rate of Promotion for Girls Over Rate of Promotion for Boys
	Boys	Girls	
1A	76.38	75.65	— .73
1B	88.36	89.12	.76
2A	88.66	89.46	.80
2B	90.43	90.74	.31
3A	89.33	90.27	.94
3B	90.12	91.36	1.24
4A	89.15	90.78	1.63
4B	89.77	90.59	.82
5A	88.33	89.39	1.06
5B	88.95	90.49	1.54
6A	88.87	89.15	.28
6B	88.91	89.98	1.07
7A	87.62	88.29	.67
7B	89.45	88.81	— .64
8A	89.34	89.70	.36
8B	93.90	94.98	1.08
Total.....	88.31	89.06	.75

The data for this table were computed from the reports to the Committee on School Inquiry, June, 1911.

The rate of promotion for all girls was, it will be observed, .75 of 1 per cent. higher than for all boys, and the rate was also higher in each of the grades, with the exception of the 1A and the 7B, in which grades the higher rate was in favor of boys. The largest difference in the rate of promotion in favor of girls was, in the 4A grade, 1.63 per cent.; the smallest, in the 6A, .28 of 1 per cent. These differences in the favor of



girls are of course small, but, affecting, as they do, large numbers of pupils, they represent a considerable difference in the actual number of boys and girls promoted. (At the rate for girls, 2,140 more boys would have been promoted than were actually advanced.) They also indicate that the elementary school, practically from the lowest to the highest grade, when judged solely on the basis of promotion, is slightly more successful in dealing with girls than in dealing with boys.

### 3. Rate of Promotion in the 1A Grade

The rate of promotion, as we have seen (Table I), was the lowest in the 1A grade. In the other grades, taken together, only one child in ten failed of promotion, but in the 1A almost each fourth child failed of advancement, with the result that 10,314 1A pupils were left back in June to reënter this grade in September, to overcrowd classes, and to congest the school.<sup>1</sup>

#### (1) Causes of Low Rate of Promotion in the 1A Grade

The requirements of the 1A grade should be relatively no higher than the requirements of other grades; hence, conditions being the same, the rate of promotion should be no lower. As a matter of fact, however, the rate of promotion for the 1A grade is, as a rule, lower than for other grades. Whether this is necessarily so is a matter of doubt, and deserves careful investigation.

From conferences with administrative officials, principals, and teachers, it was learned that they held the low rate of promotion in the 1A grade due to (a) the number of pupils unable to use the English language; (b) immaturity of pupils; (c) over-size classes; (d) part-time classes, and (e) irregular attendance and late entrance during the course of the term.

#### (a) Inability to Use the English Language as a Factor

The total register of the 1A grade, June 30, 1911, was 43,012. According to the reports made to us, there were 3,648 1A pupils who were unable to use the English language on entrance to the grade,<sup>2</sup> leaving 39,364 1A pupils who, in the opinion of the teachers, had no unusual difficulty with our language. Of these 39,364, 30,531 were promoted, and 8,833 were not promoted. Hence, the rate of promotion for 1A pupils, when all those unable to use the English language are excluded, was 77.56 per cent., which is but 1.54 per cent. higher than the rate (76.02 per cent.) for the grade as a whole.<sup>3</sup>

Assuming that all other conditions affecting promotion and non-

<sup>1</sup> See table on p. 11.

<sup>2</sup> See Table XXVII, p. 83.

<sup>3</sup> See Table XXVIII, p. 84.

promotion were the same for the two groups of children—those able, and those unable, to use the English language—the per cent. of promotion in the 1A grade was, therefore, lower by but 1.54 per cent. than it otherwise would have been, because of the presence of 1A pupils unable to use the English language. Hence, inability of pupils to use the English language on entrance to the grade is, at best, but a minor factor in causing the low rate of promotion in the 1A grade.<sup>1</sup>

**(b) Immaturity as a Factor**

The maturity of a child may be judged (a) in view of his physical development; (b) in view of his mental development, and (c) in view of his age. Maturity can be judged best in view of physical and mental development, but so difficult is it so to judge maturity and so crude is education as yet in its methods, that the maturity of children is judged very largely in view of age alone. Hence, in school practice, age is taken as the index of maturity. Accordingly, certain age limits have been fixed as the normal age for each grade of the school, and a child whose age falls within the normal age limits fixed for a grade is regarded as being sufficiently mature, both physically and mentally, to do the work of that grade. The age-grade standard is therefore the only basis we can use here in judging of the maturity or immaturity of the children found in a grade. To be sure, when maturity is judged by such standards, children will be found in all grades who are of the normal age for the grade, but who are manifestly immature for the grade.

Table III gives, by grades, the number of children out of a thousand under normal age, of normal age, under one year over normal, between one and two years over normal, between two and three years over normal, and three years and more over normal, when the distribution is made on the basis of the per cent. of children of the corresponding age in the grade June 30, 1911:

<sup>1</sup> The effect of the inability to use the English language on the rate of promotion in the 1A grade should not be confused with its effect on the actual number of non-promotions in this grade. See Table XXX, p. 86.

Table III<sup>1</sup>

Grades	Below Normal Age	Normal Age	Under 1 Year Over Normal	Between 1 and 2 Years Over Normal	Between 2 and 3 Years Over Normal	3 Years and More Over Normal
1A	10	857	91	29	7	6
1B	10	805	127	38	12	8
2A	21	706	177	61	22	13
2B	19	703	171	67	25	15
3A	30	606	206	100	35	23
3B	21	602	204	103	42	28
4A	33	499	249	127	58	34
4B	26	517	229	133	62	33
5A	32	461	241	161	74	31
5B	28	482	236	160	67	27
6A	41	431	267	181	64	16
6B	39	466	270	163	53	9
7A	53	448	290	160	43	6
7B	47	511	274	134	29	5
8A	71	505	275	122	23	4
8B	75	551	243	106	22	3

It will be observed that a larger proportion of the children in the 1A grade are of normal age than in any other grade. Hence, the ages of the children in the 1A grade correspond more nearly to the normal age fixed for the 1A grade than is the case in any other grade of the elementary school.

When judged by the age-grade standards as determined by the City Superintendent of Schools, there is, therefore, no ground for holding that 1A pupils, in large numbers, are immature for their grade and, consequently, for assuming that immaturity is any considerable factor in causing the low rate of promotion found in the 1A grade.

### (c) Over-Size Classes as a Factor

1A classes, according to the by-laws of the Board of Education, should not contain more than fifty pupils, and fifty is regarded in most cities as too large for the most effective work. Hence, 1A classes having more than fifty pupils may be considered over-size.

There were in the 1A grade, June 30, 1911, according to the reports made to us, 15,025 pupils in classes having more than fifty pupils. The rate of promotion for 1A pupils in these over-size classes was 73.46 per cent.<sup>2</sup> If the 15,025 pupils in over-size classes are subtracted from the total register of 1A pupils (43,012), there remain 27,987 pupils in classes of fifty and under. The rate of promotion for these classes was 77.40

<sup>1</sup>Table III is based upon Table XXIII of this report, see p. 73. The age-grade standards employed in Table III are those of the City Superintendent of Schools.

<sup>2</sup>See Table XVII, p. 60.

per cent.<sup>1</sup> Hence, the per cent. of promotion in the 1A grade, when all 1A pupils in over-size classes are excluded, was 1.38 per cent. higher than the per cent. of promotion for the grade as a whole.

Assuming that all other conditions affecting promotion and non-promotion were the same in classes of fifty and under, and in over-size classes, the per cent. of promotion in the 1A grade was, therefore, lower by 1.38 per cent. than it otherwise would have been, because of 1A pupils in over-size classes. Hence, it appears that over-size classes are a slight factor in causing the low rate of promotion in the 1A grade.

**(d) Part-Time as a Factor**

According to the reports made to us, the per cent. of promotion in the 1A grade, when all 1A pupils in part-time classes are excluded, was 76.96 per cent.<sup>2</sup> which is but .94 of 1 per cent. higher than the per cent. of promotion (76.02 per cent.) for the grade as a whole.

Consequently, had there been 1A whole-time classes only, the per cent. of promotion in the 1A grade as a whole would have been 76.96 per cent. Assuming that all other conditions affecting promotion and non-promotion were the same in the two kinds of classes, the per cent. of promotion in the 1A grade was, therefore, lower by but .94 of 1 per cent. because of 1A pupils in part-time classes.<sup>3</sup>

**(e) Absence as a Factor**

In the reports made to us it is impossible to distinguish between absence due to irregular attendance and absence due to late entrance during the course of the term, the reports giving merely the days absent.

Table IV gives the number of 1A pupils on register at the end of the February-June term, 1911, absent ten days and less, absent eleven to twenty, etc.; it gives the per cent. of the total register of 1A pupils absent ten days and less, absent eleven to twenty days, etc., and the per cent. of the pupils absent ten days and less, absent eleven to twenty days, etc., promoted and the per cent. not promoted:

**Table IV<sup>4</sup>**

	Absent 10 Days and Less	Absent 11 to 20 Days	Absent 21 to 30 Days	Absent 31 to 40 Days	Absent 41 Days and Above
Number.....	17,215	8,708	5,010	3,188	8,891
Per Cent. of Total Register of 1A Pupils.....	40.02	20.25	11.65	7.41	20.67
Per Cent. Promoted.....	89.47	85.75	79.02	71.01	40.56
Per Cent. Not Promoted.....	10.53	14.25	20.98	28.99	59.44

<sup>1</sup> See Table XVII, p. 60.

<sup>2</sup> See Table XXXII, p. 94.

<sup>3</sup> See note, p. 16.

<sup>4</sup> These data were compiled from Table XVIII, p. 64, and from Table XX, p. 66.

11.65 per cent. of 1A pupils were absent, it will be observed, more than a month—that is, more than a fifth of the term; 7.41 per cent. were out of school a month and a half, and 20.67 per cent. were out more than forty-one days, or one 1A pupil out of each five was absent more than two-fifths of the entire time.

The rate of promotion, it will be noted, varies inversely with the increase in the days absent. For pupils absent ten days and less the rate of promotion was 89.47 per cent.; for those absent forty-one days and more, 40.56 per cent. Further, the rate of promotion for pupils absent ten days and less (89.47 per cent.) is higher than the rate for the grade as a whole (76.02 per cent.) by 13.45 per cent. Consequently, had all other conditions been the same as among pupils absent ten days and less, and had there been in the 1A grade pupils absent ten days and less only, the per cent. of promotion for the grade, as a whole, would have been 89.47 per cent. The rate of promotion in the 1A grade was, therefore, lower by 13.45 per cent. than it otherwise would have been, because of pupils who were absent more than ten days.<sup>1</sup>

#### (f) Summary

The foregoing discussion of the assigned causes of the low rate of promotion in the 1A grade may be thus summarized: The per cent. of promotion in the 1A grade, at the end of the February-June term, 1911, was lower than it otherwise would have been by 1.54 per cent., because of the pupils who were unable to use the English language; by 1.38 per cent., because of pupils being in over-size classes, and by .94 of 1 per cent., because of pupils being in part-time classes, and by 13.45 per cent., because of absence. Immaturity was a negligible factor. It is, therefore, clear that absence (including late entrance) was the preponderating cause of the low rate of promotion in the 1A grade at the end of the February-June term, 1911.

#### (2) Increasing the Rate of Promotion in the 1A Grade

The problem of increasing the per cent. of promotion in the 1A grade is, therefore, not so much a question of increasing the number of special classes for pupils unable to use the English language, of reducing the number of over-size classes, and of part-time classes—all of which should be done—as it is a question of getting 1A pupils in school at the beginning of the term and of keeping them there during the term. Hence, the problem of increasing the per cent. of promotion in the 1A grade is chiefly one of how to improve attendance among 1A pupils.

It is to be expected that 1A pupils will attend school somewhat less regularly than pupils in other grades. Many parents do not feel the need of keeping such young children in school regularly, the children

<sup>1</sup> See note, p. 16.

themselves, not having as yet formed the school-going habit, are, at times, inclined to remain home when there is no good reason why they should. Infectious and contagious diseases are also more prevalent among 1A pupils than among pupils of the other grades. Granting all this, there is little doubt but that the amount of absence in the 1A grade can be materially reduced.

To be sure, large numbers of 1A pupils are under seven years of age, and are, therefore, not amenable to the Compulsory Education Law. Indeed, of the 83,766 pupils admitted to the 1A grade during the school year 1910-11, 65,682,<sup>1</sup> or 78 per cent., were under seven years of age. With these all that can be done is for the Board of Education to pass rules and regulations controlling their entrance and attendance, and for principals and teachers to use, to the utmost, their influence with parents and pupils. (See recommendations.)

There were, however, among the 1A entries during the school year 1910-11, 18,084<sup>1</sup> pupils, or 22 per cent. of the total 1A entries, who were seven years of age and older. Teachers and principals should not only use their influence with the parents to send these pupils to school at the beginning of the term, but every effort should be put forth to keep them regular in attendance. Further, parents having children seven years of age and older, who do not send them to school at the beginning of the term and keep them regularly in school, should be made to feel the full force of the Compulsory Education Law. It is safe to say that to enforce rigorously the Compulsory Education Law in the 1A grade would not only avoid much future trouble with parents, but cure many an incipient case of truancy.

### (3) Recommendations

To the end that attendance in the 1A grade may be improved, and that congestion in this grade may be relieved, we recommend:

(a) That a by-law be passed by the Board of Education which prohibits entrance, to the 1A grade, after the last day of the fourth week of a school term, to children who will not be seven years old until after the end of the term; and which provides for the exclusion from the school, at the discretion of the principal, of such children when they have been absent forty days, including days lost by late entrance and irregular attendance, during the first half of the term.

(b) That effort be made by the Board of Education to have the Compulsory Education Law so amended that it will apply to children who will be seven years old before the end of a given school term.

(c) That the Permanent Census Board, prior to the beginning of each school term, send to the principal of each school, along with the

<sup>1</sup> Annual Report of City Superintendent of Schools, 1910-11. Table XXXIII. p. 61.

name and home address of the parent, the names, for the given school district (a), of all children six years of age who will not be seven until after the close of the given term; (b) of all children who are six and who will be seven before the end of the given term, and (c) of all children seven years of age, who should enter school at the opening of the given term. In this way each principal will know the number of children that should enter his or her school, and will be able to report at an early date to the attendance officers all children who have not entered and who are subject to the Compulsory Education Law.

(d) That a poster in the several languages of the city be prepared and placed in the several school districts prior to the beginning of each term, which will emphasize the importance of sending children to school at the beginning of the term, and of keeping them regular in attendance, which will state the rules regarding the entrance and attendance of children who will not be seven until after the end of the term, and which will point out the provisions of the Compulsory Education Law.

(e) That a new attendance report be prepared for the 1A grade, which will show for each child the date of entrance, the number of days in attendance during the month, and the cause of each absence, and that a separate report be made for children not amenable to the Compulsory Education Law and for children amenable to it, to the end that definite information may be had on absence in the 1A grade, and on the extent to which the Compulsory Education Law is enforced.

#### 4. "Forced Promotions"

##### (1) Assertion of Teachers and Principals

With the exception of the 1A and the 8B grades, the rate of promotion, both in the several boroughs and in the Greater City, was, at the end of the February-June term, 1911, as we have seen, uniformly about 90 per cent. The fact that the rate of promotion was uniformly about 90 per cent. gives weight to the statement made to us repeatedly, both by teachers and principals, that they were "unofficially expected" to promote at the end of the February-June term, 1911, approximately 90 per cent. of their pupils, and, hence, that promotions were forced and were made mechanically and without due regard to fitness.

The City Superintendent of Schools did urge upon principals, during the school year 1910-11, the importance of advancing a large per cent. of pupils. To quote his words: "I have been careful to advise the principals that the *pressure to secure more generous promotions* must not be construed to mean that pupils who are unfitted to do the work of the next higher grade are to be promoted. It means only that every effort is to be made to render every pupil fit for promotion."<sup>1</sup>

Despite the foregoing uniformity in the per cent. of promotion, and

<sup>1</sup> Annual Report of the City Superintendent of Schools for 1910-11, p. 83.

the assertion of teachers and principals, referred to above, there is evidence that, on the whole, principals and teachers used discretion in making promotions at the end of the February-June term, 1911, and that promotions were not made on a mere numerical and mechanical basis, as follows:

## (2) Variation in Rate of Promotion

(a) *With Absence, Over-Age, etc.*—Of the pupils on register June 30, 1911, the rate of promotion for those absent ten days and less was 93.16 per cent.; for those absent forty-one days and above, 52.82 per cent.<sup>1</sup> Of the pupils of normal age for their grade, 90.84 per cent. were advanced, but this was the case with only 78.65 per cent. of those three years and more over normal.<sup>2</sup> For pupils able to use the English language on entrance to the grade the per cent. of promotion was 88.99 per cent.; for those unable to use our language, 65.05 per cent.<sup>3</sup> In all grades, with the exception of the 4A, 4B, and 6B, the rate of promotion for pupils in whole-time classes was higher than for pupils in part-time classes.<sup>4</sup> All of which tends to show that the children receiving promotion were those experience would indicate were the best entitled to promotion.

(b) *In Different Schools.*—That discretion was used in making promotions is also shown by the variations in the rate of total promotions in different schools.

One school was selected, by chance, from each of the forty-six districts in the Greater City, and two schools from five of the largest districts, making a total of fifty-one. The per cent. of total promotion, at the end of the February-June term, 1911, varied in these fifty-one schools from 80 per cent. to 98 per cent. These schools group themselves, when distributed according to per cent. of total promotion, as follows:

Table V

Per Cent. of Promotion in All Grades	Number of Schools Promoting This Per Cent.	Per Cent. of Promotion in All Grades	Number of Schools Promoting This Per Cent.	Per Cent. of Promotion in All Grades	Number of Schools Promoting This Per Cent.	Per Cent. of Promotion in All Grades	Number of Schools Promoting This Per Cent.
80	1	85	1	89	5	93	4
81	2	86	7	90	6	94	3
82	3	87	4	91	3	98	1
83	3	88	1	92	7	..	..

<sup>1</sup> See Table XX, p. 66.

<sup>2</sup> See Table XXV, p. 76; also table p. 78.

<sup>3</sup> See Table XXIX, p. 85.

<sup>4</sup> See Table XXXVI, p. 101.



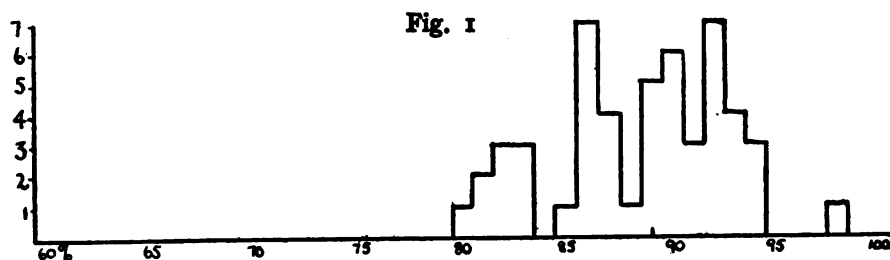


Fig. 1 is a graphic representation of the data in Table V. The rate of promotion is represented on the horizontal scale and the number of schools on the vertical scale. The median rate of promotion is indicated by the short vertical line on the horizontal scale.<sup>1</sup>

(c) *In Same Grade of Different Schools.*—The rate of promotion at the end of the February-June term, 1911, varied, also, in the different schools in the same grade. For example, the rate of promotion in the 8A grade of the foregoing fifty-one schools ranged from 60 per cent. to 100 per cent. These schools group themselves, when distributed according to the per cent. of promotion in the 8A grade, as follows:

Table VI

Per Cent. of Promotion in 8A Grade	Number of Schools Promoting This Per Cent.	Per Cent. of Promotion in 8A Grade	Number of Schools Promoting This Per Cent.	Per Cent. of Promotion in 8A Grade	Number of Schools Promoting This Per Cent.	Per Cent. of Promotion in 8A Grade	Number of Schools Promoting This Per Cent.
60	1	83	1	90	2	96	2
76	1	84	1	91	3	97	3
78	1	85	2	93	7	100	6
81	2	88	4	94	4	..	..
82	3	89	4	95	4	..	..

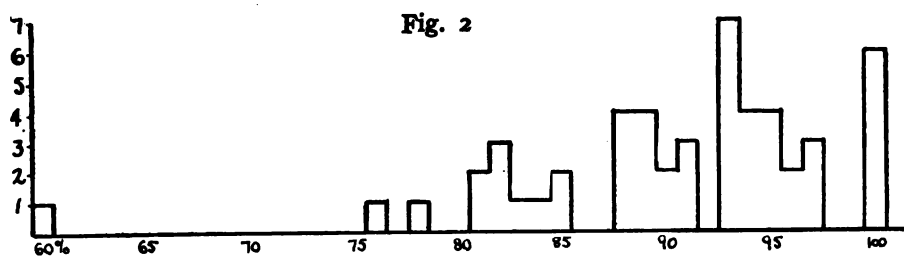


Fig. 2 is a graphic representation of the data in Table VI. The rate of promotion is represented on the horizontal scale and the number of schools on the vertical scale. The median rate of promotion is indicated by the short vertical line on the horizontal scale.

<sup>1</sup>The median rate of promotion for a group of schools is the rate of promotion, which is lower than the rate in approximately one-half and higher than the rate in approximately the other half of the schools of the group.

In the 5A grade the rate of promotion ranged from 75 per cent. to 100 per cent., and the schools group themselves, when distributed according to the per cent. of promotion in this grade, as follows:

Table VII

Per Cent. of Promotion in 5A Grade	Number of Schools Promoting This Per Cent.	Per Cent. of Promotion in 5A Grade	Number of Schools Promoting This Per Cent.	Per Cent. of Promotion in 5A Grade	Number of Schools Promoting This Per Cent.	Per Cent. of Promotion in 5A Grade	Number of Schools Promoting This Per Cent.
75	1	84	2	90	4	95	2
80	3	86	2	91	4	96	2
81	2	87	3	92	6	97	2
82	1	88	1	98	5	100	2
83	5	89	3	94	1	...	..

Fig. 3

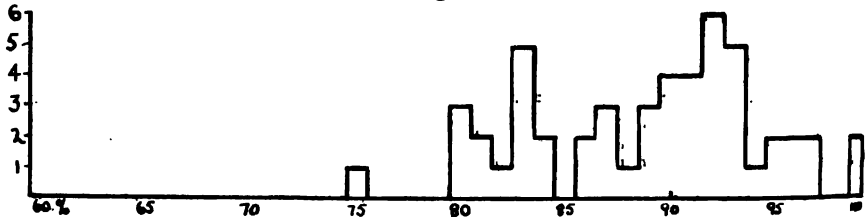


Fig. 3 is a graphic representation of the data in Table VII. The rate of promotion is represented on the horizontal scale and the number of schools on the vertical scale. The median rate of promotion is indicated by the short vertical line on the horizontal scale.

In the 1A grade the rate of promotion varied from 57 per cent. to 99 per cent., and the schools group themselves, when distributed according to the per cent. of promotion in this grade, as follows:

Table VIII

Per Cent. of Promotion in 1A Grade	Number of Schools Promoting This Per Cent.	Per Cent. of Promotion in 1A Grade	Number of Schools Promoting This Per Cent.	Per Cent. of Promotion in 1A Grade	Number of Schools Promoting This Per Cent.	Per Cent. of Promotion in 1A Grade	Number of Schools Promoting This Per Cent.
57	1	74	1	81	5	91	1
64	1	75	4	82	1	94	1
65	2	76	2	83	3	97	1
67	1	77	4	84	2	98	1
68	5	78	3	85	1	99	1
70	2	79	1	88	1	..	..
72	3	80	1	90	2	..	..

Fig. 4

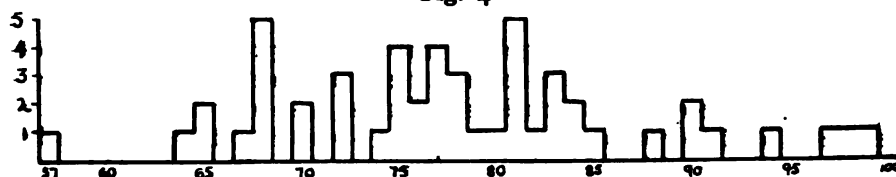


Fig. 4 is a graphic representation of the data in Table VIII. The rate of promotion is represented on the horizontal scale and the number of schools on the vertical scale. The median rate of promotion is indicated by the short vertical line on the horizontal scale.

(d) *In Different Grades of the Same School.*—Finally, the rate of promotion, at the end of the February-June term, 1911, varied from grade to grade in the same school. This is shown by Fig. 5. Fig 5 represents the variations from grade to grade in the per cent. of promotion in the school, of the fifty-one selected by chance, having the highest per cent. of total promotion, in the school having the lowest per cent. of total promotion, and in the school having the median rate of total promotion.

Fig. 5

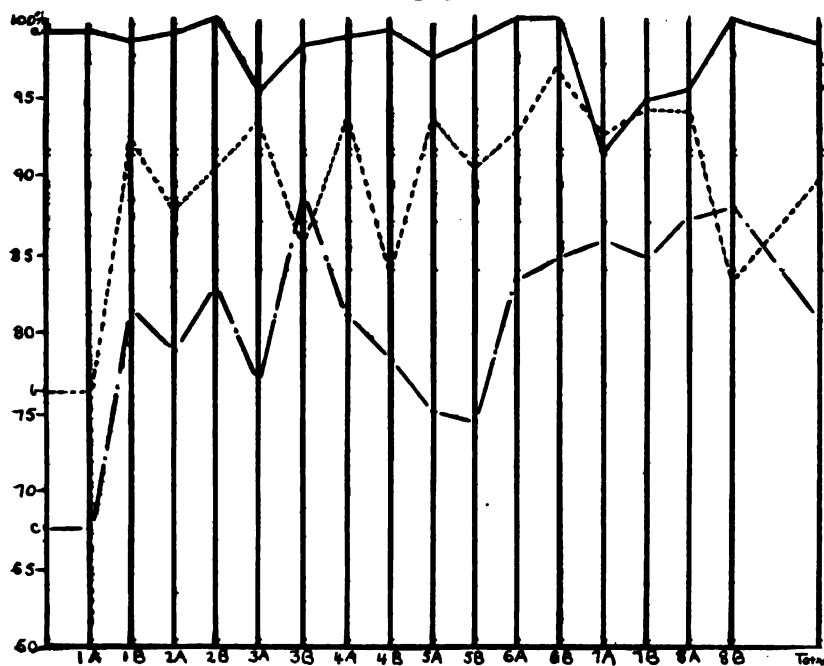


Fig. 5. a—School having highest rate of total promotion.  
b—School having median rate of total promotion.  
c—School having lowest rate of total promotion.

## (3) Conclusions

Such variations as the foregoing in the rate of promotion would not occur had promotions been made on a mere mechanical basis. Indeed, the very presence of such variations indicates, despite the uniformity in the rate of total promotion in the several grades in the different boroughs and in the Greater City, that judgment was exercised in the making of promotions at the end of the February-June term, 1911, and, hence, that, on the whole, the children promoted were the pupils who should have been advanced.

## 5. Increase in the Rate of Promotion

To affirm that promotions at the end of the February-June term, 1911, were not made mechanically is not to deny that there was a decided increase in the rate of promotion over corresponding terms of previous years.

## (1) Increase in Rate of Promotion

Table IX gives, by grades, the rate of promotion for the entire February-June term, 1910 (including promotions made during the term and at the end of the term), the rate of promotion for the entire February-June term, 1911, and the increase in the rate of promotion for the entire February-June term, 1911, over the rate for the same term, 1910:

Table IX

Grades	Rate of Promotion for Entire Feb.-June Term		Increase in the Rate of Promotion for the Entire Feb.-June Term, 1911, Over the Rate for the Same Term of 1910
	1910	1911	
1A	73.61	78.80	5.19
1B	86.77	90.77	4.00
2A	87.82	91.38	3.56
2B	88.18	92.79	4.61
3A	87.97	92.23	4.26
3B	88.42	92.89	4.47
4A	87.62	91.99	4.37
4B	87.72	92.07	4.35
5A	85.84	91.55	5.71
5B	86.12	92.37	6.25
6A	85.65	91.32	5.67
6B	89.78	91.22	1.44
7A	85.77	89.62	3.85
7B	85.99	91.35	5.36
8A	86.89	91.79	4.90
8B	91.05	94.98	3.93
Total.....	86.30	90.86	4.56

The figures for this table are exclusive of special classes and were computed from Table LII, page 25, Annual Report of the City Superintendent of Schools for 1909-10, and for 1910-11, Table XXXVII, page 67.

The rate of promotion for the entire February-June term of 1911 was higher in every grade than for the corresponding term of 1910. It was higher by 1.44 per cent. in one grade, by from 3.56 per cent. to 3.93 per cent. in three grades, by 4 per cent. to 4.90 per cent. in seven grades, by from 5.19 per cent. to 5.71 per cent. in four grades, and by 6.25 per cent. in one grade. It will also be observed that the rate of total promotion was higher for the entire February-June term, 1911, by 4.56 per cent., than for the same term of 1910.

An increase of 4.56 per cent. in the rate of promotion, in a single year, is an unusually large increase for the City of New York. Table X gives by grades the rate of promotion for the entire February-June term of 1906, 1907, 1908, 1909, 1910, and 1911; the increase in the rate of promotion for the entire February-June term, 1910, over the rate for the entire February-June term, 1906; also the increase in the rate of promotion for the entire February-June term, 1911, over the same term, 1910, and, finally, it gives the difference between the increase in the rate of promotion for the entire February-June term of 1911 over the same term of 1910, and the increase for the entire February-June term of 1910 over the same term of 1906.

Table X<sup>1</sup>

Grades	Rate of Promotion for Entire Feb.-June Term						Increase in Rate of Promotion For		Difference in Rate of Promotion Between the Entire Feb.-June Term, 1911, Over 1910 and the Entire Feb.-June Term, 1910, Over 1906.
							Entire Feb.-June Term, 1910, Over Same Term, 1906	Entire Feb.-June Term, 1911, Over Same Term, 1910	
	1906	1907	1908	1909	1910	1911			
1A	68.51	65.49	69.60	71.74	73.61	78.80	5.10	5.19	.09
1B	85.19	82.28	85.26	86.24	86.77	90.77	1.58	4.00	2.42
2A	83.56	82.00	85.98	86.76	87.82	91.38	4.26	3.56	-.70
2B	85.04	83.65	86.50	87.42	88.18	92.79	3.14	4.61	1.47
3A	84.12	81.94	85.73	86.50	87.97	92.23	3.85	4.26	.41
3B	85.85	83.81	86.75	88.07	88.42	92.89	2.57	4.47	1.90
4A	84.38	82.91	85.78	85.94	87.62	91.99	3.24	4.37	1.13
4B	84.62	81.88	85.50	86.58	87.72	92.07	3.10	4.35	1.25
5A	82.93	80.43	83.15	84.62	85.84	91.55	2.91	5.71	2.80
5B	82.75	80.91	83.59	85.01	86.12	92.37	3.37	6.25	2.88
6A	82.85	81.46	83.33	84.12	85.65	91.32	2.80	5.67	2.87
6B	83.11	81.52	85.06	84.69	89.78	91.22	6.67	1.44	-5.23
7A	80.37	79.93	81.01	82.75	85.77	89.62	5.40	3.85	-1.55
7B	82.25	80.79	83.60	84.87	85.99	91.35	3.74	5.36	1.62
8A	81.39	81.93	84.37	85.08	86.89	91.79	5.50	4.90	-.60
8B	82.92	86.81	88.12	88.23	91.05	94.98	8.13	3.93	-4.20
Total.....	82.56	80.72	83.78	84.98	86.30	90.86	3.75	4.56	.81

<sup>1</sup> These figures are exclusive of special classes, and were computed from the Annual Report, for the corresponding year, of the City Superintendent of Schools.

There has been, it will be observed, an increase in the rate of promotion in the February-June term, in each of the grades, from 1906 to 1911. The most decided increase was, however, in 1911. So decided was this that the increase in 1911 over 1910 was greater, in eleven of the sixteen grades, than the increase in these grades for the five years prior to 1911. While the increase for 1910, in the rate of promotion, in all grades taken together, over 1906 was, it will be noted, 3.75 per cent., the increase in the rate of total promotion in 1911 over 1910 was 4.56 per cent. Hence, the increase in total promotion for the entire February-June term was .81 of 1 per cent. greater for the single February-June term, 1911, than for the five terms prior to 1911.

This extraordinary increase in the rate of promotion for the entire February-June term, 1911, may have been due either to an increase in promotions during the term, or to an increase at the end of the term, or it may have been due to both an increase during the term and at the end of the term. Table XI gives, by grades, for the February-June term, 1910, the rate of promotion during the term, and the rate at the end of the term; also the same facts for the February-June term, 1911. It shows, besides, the increase in the rate of promotion during the February-June term, 1911, over the rate during the same term, 1910; also the increase in the rate of promotion at the end of the February-June term, 1911, over the rate at the end of the same term, 1910:

Table XI<sup>1</sup>

Grades	Feb.-June Term, 1910		Feb.-June Term, 1911		Increase in Rate of Promotion Feb.-June Term, 1911, Over Feb.-June Term, 1910	
	Rate of Promotion During Term	Rate of Promotion at End of Term	Rate of Promotion During Term	Rate of Promotion at End of Term	Increase During Term	Increase at End of Term
1A	2.42	71.19	3.04	75.76	.62	4.57
1B	1.64	85.13	2.60	88.16	.96	3.03
2A	2.21	85.60	2.66	88.73	.45	3.13
2B	1.93	86.26	2.60	90.19	.67	3.93
3A	2.28	85.69	2.78	89.45	.50	3.76
3B	1.58	86.87	2.45	90.44	.89	3.57
4A	1.86	85.76	2.41	89.58	.55	3.82
4B	1.52	86.20	2.23	89.83	.71	3.63
5A	1.99	83.85	2.75	88.80	.76	4.95
5B	1.75	84.37	2.63	89.74	.88	5.37
6A	1.98	83.67	2.44	88.88	.46	5.21
6B	1.71	88.07	1.77	89.45	.06	1.38
7A	3.55	82.22	2.03	87.59	-1.52	5.37
7B	2.03	83.98	2.31	89.05	.28	5.09
8A	2.00	84.88	2.30	89.49	.30	4.61
8B	0.005	91.04	.71	94.28	.705	3.24
Total.....	1.93	84.37	2.44	88.42	.51	4.65

<sup>1</sup> These figures are exclusive of special classes and were computed from the Annual Report of the City Superintendent of Schools for 1910, Table LII, page 92, and for 1911, Table XXXVII, page 66.

There was an increase in the rate of promotion during the February-June term, 1911, over the rate during the same term, 1910, in all grades, except the 7A, where there was a decrease of 1.52 per cent. The rate during the term was higher by from .06 of 1 per cent. to .28 of 1 per cent. in two grades, by from .30 of 1 per cent. to .50 of 1 per cent. in four grades, by from .55 of 1 per cent. to .75 of 1 per cent. in six grades, and by from .88 of 1 per cent. to .96 of 1 per cent. in three grades—while the increase in all grades, taken together, was .51 of 1 per cent.

It will also be observed that there was an increase, in all grades, in the rate of promotion at the end of the February-June term, 1911, over the rate at the end of the same term, 1910. The rate was higher by 1.38 per cent. in one grade, by from 3.03 per cent. to 3.93 per cent. in eight grades, by from 4.57 per cent. to 4.95 per cent. in three grades, and by from 5.09 per cent. to 5.37 per cent. in four grades, while the increase in all grades, taken together, was 4.05 per cent.

Of the 4.56 per cent. increase in the rate of promotions for the entire February-June term, 1911, over the rate for the entire February-June term, 1910, .51 of 1 per cent., or 11.18 per cent., of this increase was, therefore, due to the larger number of promotions during the term, and 4.05 per cent. or 88.82 per cent. of the increase was due to the larger number of promotions at the end of the term.

The fact that the increase in the rate of total promotions for the entire February-June term, 1911, over 1910, was greater than the total increase for the same term from 1906 to 1910, inclusive, and the fact that 88.82 per cent. of the extraordinary increase in the rate of total promotions for the entire February-June term, 1911, was due to the increased number of promotions at the end of the term, raises the question: how was this extraordinary increase in the rate of promotion effected? A part of it was, doubtless, brought about through an increase in the efficiency of the school. The importance of making more liberal promotions having been emphasized, teachers and principals put forth unusual effort to fit pupils for advancement. Yet, when due allowance is made for whatever increase in efficiency there may have been, it must be admitted, by all who are acquainted with school conditions and school work, that the extraordinary increase in the rate of promotion in the February-June term, 1911, was due, in most part, to the "pressure" exercised by the City Superintendent of Schools "to secure more generous promotion."

## (2) Increase Justified

The important question, therefore, is: Was the City Superintendent of Schools justified in using "pressure to secure more generous promotions"? In view of the number of over-age pupils, and of the amount of elimination in the elementary schools of the City of New York, we believe the City Superintendent was justified in his endeavor to increase the rate of promotion.

(a) *Number of Over-Age Pupils.*—The course of study in the elementary schools of the City of New York comprises sixteen units, each in theory, one-half school year in length. Accordingly, a child, entering school at six or seven, should complete the elementary school by his fourteenth or fifteenth year. If, for any reason, a pupil enters school late or remains a whole year or more in a single grade, such a child becomes over-age for his grade.

Table XII gives the register in regular classes, after promotion June 30, 1911, in the grades of each year, the number of pupils in the grades of each year and among the elementary school graduates of 1910-11, under normal age, normal age, under one year over normal, etc.; it shows, besides, the total number of over-age pupils in the grades of each year and among the elementary school graduates; also the per cent. of the register of each grade and the per cent. of the graduates over-age:



Table XII

	First Year Grades	Second Year Grades	Third Year Grades	Fourth Year Grades	Fifth Year Grades	Sixth Year Grades	Seventh Year Grades	Eighth Year Grades	Total All Grades	Elementary School Graduates
Register in Regular Classes										
After Promotion, June 30, 1911.....	64,057	87,048	84,650	81,121	75,819	69,236	59,363	44,504	565,798	35,329
Under Normal Age.....	6,276	12,385	10,050	9,010	6,862	6,365	6,302	5,668	62,918	7,646
Normal Age.....	52,679	63,294	57,366	49,958	44,980	39,029	35,137	28,579	371,022	13,206
Less Than One Year Over-Age.....	3,639	7,213	10,141	12,280	12,639	14,168	12,291	7,670	80,021	9,708
Between One and Two Years Over-Age.....	947	2,580	4,365	5,706	7,096	6,927	4,620	2,147	34,388	3,862
Between Two and Three Years Over-Age.....	292	991	1,635	2,745	3,004	2,365	878	389	12,299	802
Three and More Years Over-Age.....	224	585	1,093	1,442	1,238	382	135	51	5,150	105
Total Number of Over-Age Pupils.....	5,102	11,369	17,234	22,153	23,977	23,842	17,924	10,257	131,858	14,477
Per Cent. of Register Over-Age.....	7.96	13.06	20.36	27.31	31.62	34.44	30.19	23.05	23.30	40.98

The data for this table were computed from Tables XXVIII and XXXV, pp. 54 and 63 of the Annual Report of the City Superintendent of Schools for 1910-11. The table merely puts in different form the report on the ages of pupils in regular classes of the City Superintendent of Schools for 1911, hence gives the number of over-age pupils when determined by the age-grade standards as fixed by the City Superintendent.

Of the 35,329 graduates in 1910-11, it will be observed that 14,477, or 40.98 per cent., were over-age, hence were fifteen years of age and older on completing the elementary school. Despite the fact that the foregoing table has to do only with pupils in regular classes, and, despite the fact that age is judged from the point of view of the age limits fixed for being in the grade in which pupils are registered after promotion, there were in the regular classes of all grades, June 30, 1911, according to the City Superintendent of Schools, 131,858 over-age pupils, or 23.30 per cent. of the pupils on register after promotion were behind their grade for their age. The grades of the sixth year show the highest per cent. of over-age, 34.44 per cent., and the grades of the first year, the lowest, 7.96 per cent.

Fig. 6

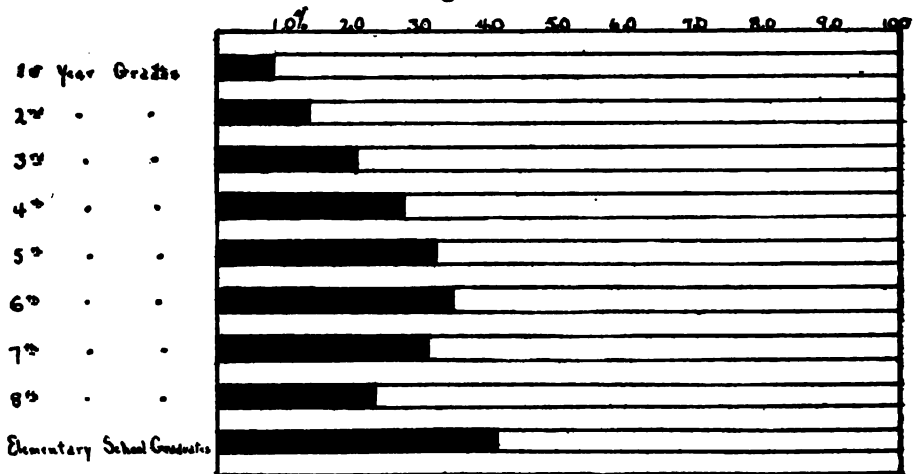


Fig. 6. Black indicates per cent. of over-age pupils in the grades of each year and the per cent. of over-age pupils among the graduates of 1910-11, as reported by the City Superintendent of Schools.

Were the foregoing over-age pupils registered in the grade where they should be by reason of their age, these pupils would have been distributed, when distributed according to the age-grade standards as fixed by the City Superintendent of Schools, among the several grades as follows:

Total No. Over-Age Pupils	Present Grade	Grades in Which These Over-Age Pupils in Each Grade Should be Registered by Reason of Their Age; Also the Number That Would be in Each Grade											
		Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	H. S. First Year	H. S. Second Year	H. S. Third Year	H. S. Fourth Year	College First Year
5,102	First Year.....	3,639	947	292	120	59	45	93	.....	.....	.....	.....	.....
11,369	Second Year.....		7,213	2,580	991	351	141	286	.....	.....	.....	.....	.....
17,234	Third Year.....			10,141	4,365	1,635	705	1,041	102	.....	.....	.....	.....
22,153	Fourth Year.....				12,260	5,706	2,745	3,004	350	51	.....	.....	.....
23,977	Fifth Year.....					12,639	7,096	6,927	1,088	150	.....	.....	.....
23,842	Sixth Year.....						14,168	.....	2,365	342	40	.....	.....
17,924	Seventh Year.....							12,291	4,620	878	122	13	.....
10,257	Eighth Year.....								7,670	2,147	389	44	7
14,477	El. School Graduates.								9,708	3,862	802	86	19

There are thousands of pupils in each grade, it will be noted, who are below the grade in which their age entitles them to be. There are pupils in the second grade who, by reason of their age, should be in the eighth grade; pupils in the third, who should be in the high school; and pupils graduating from the elementary school, who should be in college. In the sixth and lower grades alone there are 15,839 pupils who are already fourteen years of age; in the seventh grade, 17,924, and in the eighth grade, 24,597, or a total of 58,360 pupils who instead of dragging along between the first and eighth grades should have their elementary education behind them and be either at work or in high school.

The educational significance of over-age lies in the fact that just to the degree that pupils in the elementary school are over-age, just to that degree do they—particularly those over-age because they have failed to receive promotion regularly, tend to fail to complete the elementary school course of study.<sup>1</sup> Hence, of the pupils on register in regular classes June 30, 1911, 34,388, by reason of being over-age between one and two years, will probably fail to complete the work of the eighth year; 12,299, by reason of being behind between two and three years, will probably fail to complete the work of the seventh year; and 5,151, by reason of being behind three and more years, will probably fail to complete the grades of the sixth year.

A certain amount of over-age in the elementary schools of the city is due to the late entrance of children to the grades of the first year; the major portion of it is, however, due to pupils failing to receive regular promotion after they have once entered school.<sup>2</sup> This fact in itself supplies ample ground for the insistence of the City Superintendent on "more generous promotions."

(b) *Amount of Elimination.*—The dropping out of pupils from the elementary schools before completing the course of study is termed elimination. It is doubtful whether any large city of this country has, at present, the data at hand to determine with exactness the grades of work completed by the children leaving the elementary school. At all events, such data are not to be had at present in the City of New York.<sup>3</sup>

Following the method pursued by writers on elimination, the per cent. of pupils entering school who continue to the end of each year is estimated by finding what per cent. the pupils in a given grade at the end of a given school year before promotion are of the number of pupils that should be in the grade in view of the first-year beginners for the given school year.

<sup>1</sup> See this report, p. 78.

<sup>2</sup> See Table XXXIII, p. 61, Annual Report of the City Superintendent of Schools, 1910-11, and Table I, p. 12, of this report.

<sup>3</sup> The pupils' Record Cards, adopted in 1909, will in the near future supply these data.

Proceeding in this way,<sup>1</sup> we estimate that, of the pupils entering the elementary schools of the City of New York, the per cent. remaining to the end of each year and the per cent. completing the final grade are as follows:

	Per Cent. Remaining to the End of the Year	Per Cent. Dropping Out Before the End of the Year
First Year.....	108.66	.....
Second ".....	100.73	.....
Third ".....	99.47	.....
Fourth ".....	98.57	.....
Fifth ".....	96.69	3.31
Sixth ".....	88.71	11.29
Seventh ".....	61.45	38.55
Eighth ".....	47.57	52.43
Completing Eighth Grade.....	41.33	58.67

It would appear from the foregoing estimates that, of the children entering the elementary schools of the City of New York, practically all remain to the end of the grades of the fifth year, that one pupil out of each eight leaves before the end of the sixth year, four out of each ten fail to remain to the end of the seventh year, less than one in two continues to the end of the eighth year, and but four out of each ten graduate.

Fig. 7

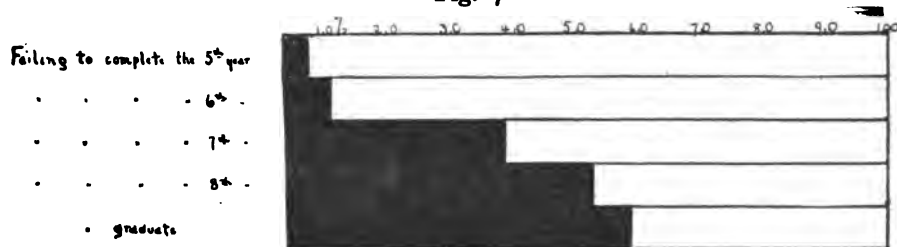


Fig. 7. Black indicates the per cent. of pupils failing to complete the grades of the fifth, sixth, seventh, and eighth years, and the per cent. failing to graduate.

All other conditions remaining the same, the number of grades a pupil is able to complete during the course of his school life is condi-

<sup>1</sup>In making this estimate the average of the first-year beginners for 1908-9, 1909-10, and 1910-11 was used as the base. See Annual Report of City Superintendent of Schools, 1909, p. 72; 1910, Table XLVII, p. 78, and 1911, Table XXXIII, p. 61. For the number of pupils remaining to the end of the grades of each year see Annual Report of the City Superintendent of Schools, 1911, Table XXXVII, p. 66. The pupils on register June 30, 1911, in special classes were arbitrarily distributed as follows: One-sixteenth to the grades of the second year; one-sixteenth to the grades of the third year; three-sixteenths to the grades of the fourth year; five-sixteenths to the grades of the fifth year, and six-sixteenths to the grades of the sixth year.

tioned by standards of promotion. The practical problem confronting the City Superintendent of Schools was, therefore: Is it better for the children of the city to spend their entire time in school in the sixth and lower grades, or would it be better to make the standards of promotion such that pupils in larger numbers may have opportunity to profit by the work of the seventh and eighth grades? The work in the sixth and lower grades is confined primarily to the school arts—reading, spelling, writing, and the fundamentals of arithmetic—and the work of the two higher grades primarily to the giving of information about our industrial, political, and social life which makes for economic insight and personal ideals, hence there can be but one answer to the foregoing question, viz., that it is preferable to make the standards of promotion such that pupils in larger numbers may enjoy the advantages of the work of the seventh and eighth grades.

### **(3) Increase in the Rate of Promotion and Forced Promotions**

While the City Superintendent of Schools was, therefore, justified in his endeavor to increase the rate of promotion, and while principals and teachers used discretion in making promotions, the fact remains that principals and teachers feel that promotions at the end of the February-June term, 1911, were "forced."<sup>1</sup>

No changes were made during this term in the requirements of the elementary school course of study either in the quality of instruction or in the quantity of the subject matter to be taught. Yet teachers and principals felt constrained to promote more than the usual number of pupils. Teachers and principals were thus placed in a false position—that is, they felt under the necessity of promoting pupils who, when judged by official standards, were not fit for promotion. It is safe to say that many such pupils were promoted, and this accounts not only for the feeling that promotions were "forced," but also for a large part of the extraordinary increase in promotions in the February-June term, 1911, over the corresponding term of 1910.

Teachers and principals should not be put in the position of having to promote pupils who, when judged by official standards, are not prepared for promotion. If the City Superintendent of Schools was convinced that it was desirable to increase the rate of promotion, it was incumbent upon him so to lessen the requirements of the elementary school course of study as to quantity that more pupils could meet its requirements and hence be legitimately promoted in greater numbers.

## **6. Conditions Favorable to a Maximum Rate of Promotion**

The extraordinary increase in the rate of promotion in the elementary schools for the February-June term, 1911, and the fact that this increase

<sup>1</sup> As already affirmed, this statement is based on the voluntary testimony of many teachers and principals who expressed themselves freely on the subject.

was brought about not so much through an increase in the efficiency of the school as through the promotion of pupils who in former terms would not have been advanced, raises the question: What should be the maximum rate of promotion?

**(1) The Maximum Rate According to the City Superintendent of Schools**

The City Superintendent of Schools is inclined to believe that 90 per cent. of promotion on register at the end of the term is the maximum rate for the city as a whole. "It seems probable," to quote from his report, "that little further increase in the general rate of promotion can be expected. A remarkable uniformity is shown in all grades, the rate for the year ranging from 90.4 per cent. to 92 per cent., with the exception of the 8B grade, which should be excluded, because here the unusual incentive of graduation and the more selected group from which the graduates are drawn tend to raise the 8B rate of promotion above what may be normally expected in the grades below. A difference of only 1.6 per cent. in the rate of promotion in the remaining grades shows so little variability as to indicate a close approach to the probable maximum rate."<sup>1</sup>

That the rate of promotion in the several grades, exclusive of the 8B, was, for the year 1910-11, uniformly about 90 per cent. does not indicate that 90 per cent. should be regarded as the maximum rate of promotion. The same argument would have placed the maximum rate at approximately 81 per cent. in 1907; at 84 per cent. in 1908; at 85 per cent. in 1909; and at 86 per cent. in 1910.<sup>2</sup> Moreover, while the rate of promotion for the year 1910-11 in the several grades is uniform for both the Greater City and the different boroughs, there were variations in the several districts, ranging from 93 per cent. in District 2 to 98 per cent. in District 24;<sup>3</sup> also in the several schools, ranging from 35 per cent. in public school number 25, Richmond, to 110 per cent. in public school number 22, Richmond.<sup>4</sup> Further, the rate of promotion at the end of the term in the regular classes of given grades ranged, for the February-June term, 1911, in different schools, from 60 per cent. to 100 per cent. in the 8A grade, from 75 per cent. to 100 per cent. in the 5A grade, and from 57 per cent. to 99 per cent. in the 1A grade.<sup>5</sup> Such variations in the rate of promotion in different grades, in different schools, and in different districts give little support to the thought that the maximum rate has been attained. Indeed, these variations suggest that, even with prevailing standards, there might be a considerable increase in the rate of promotion.

<sup>1</sup> Annual Report of the City Superintendent of Schools for 1910-11, p. 81.

<sup>2</sup> See Table X, p. 27.

<sup>3</sup> Annual Report of the City Superintendent of Schools for 1910-11, Table XL, pp. 75-77.

<sup>4</sup> Annual Report of the City Superintendent of Schools for 1910-11, appendix "C," p. 471.

<sup>5</sup> See Tables VI, p. 23; VII and VIII, p. 24.

## (2) Conditions Determining Maximum Rate of Promotion

However this may be, the present rate of promotion in no wise indicates what the rate of promotion should be. The rate of promotion in the elementary schools of the city is at present in large part determined by the requirements of its one course of study.

Conditions are favorable to the completion of an elementary school course of study by practically all pupils, hence favorable to a maximum rate of promotion—

(a) When the requirements of the elementary school are adapted to the varying abilities and educational needs of different groups of pupils, and are such that all normal children in regular attendance are able to complete the course of study; hence, when there are as many elementary school courses of study of varying requirements as there are groups of normal children of different abilities and educational needs.

(b) When the total length of each of the different elementary school courses of study is determined (1) by the length of the period pupils may with profit be kept under the régime of the elementary school, and (2) by the length of time pupils may reasonably be expected to be in attendance during this period.

## (3) Disregard of Conditions Favorable to a Maximum Rate of Promotion

These conditions favorable to a maximum rate of promotion have, to a considerable extent, been disregarded in the development and administration of the present elementary school course of study.

(a) *Disregard of the Proper Length of the Elementary School Period.*—The length of the period children can with profit be kept under the régime of the elementary school is determined, on the one hand, by the age at which children may well enter the elementary school, and, on the other, by pubescence. While custom sanctions children entering the elementary school at six, and while children entering at this age probably make on the whole better progress than those entering at any other age,<sup>1</sup> no one actually knows whether the best age of entrance is five, six, seven, or older.<sup>2</sup> In the present state of our knowledge, the best, therefore, that can be done is to follow the custom of admitting children to the elementary school at six, and make six the lower age limit of the elementary school period. This can at least be done until the question of the best age at which to admit children to the elementary schools is determined by experimental investigation.

Pubescence<sup>3</sup> is, as a rule, accompanied by certain physical vigor, mental and emotional development which makes pubescent<sup>3</sup> children sus-

<sup>1</sup> Ayres: "Relation Between Entering Age and Subsequent Progress Among School Children."

<sup>2</sup> See Table XXV, p. 76.

<sup>3</sup> Pubescence denotes a process covering a period of time. Puberty or physiological maturity is the point of time when the ability to procreate is established. A pubescent is an individual who is maturing, and hence in the period of pubescence.



ceptible to different materials of instruction, different methods of teaching, a different kind of discipline, school organization, and life, than are prepubescent children. Hence, there is general agreement that children cannot be kept with profit under the régime of the elementary school much beyond the beginning of pubescence.<sup>1</sup>

The age at which pubescence begins varies among normal children and the length of the period ranges from one to three years. In consequence, in an age group above twelve years of age, there will be prepubescent (immature) children; pubescent (maturing) children; and postpubescent (mature) children. The per cent. of immature, maturing, and mature boys in different age groups are shown in Table XIII:

Table XIII

AGE IN YEARS	PHYSIOLOGICAL AGE GROUPS		
	Immature, Per Cent.	Maturing, Per Cent.	Mature, Per Cent.
12.50 to 13.00.....	69	25	6
13.00 " 13.50.....	55	26	18
13.50 " 14.00.....	41	28	31
14.00 " 14.50.....	26	28	46
14.50 " 15.00.....	16	24	60
15.00 " 15.50.....	9	20	70
15.50 " 16.00.....	5	10	85
16.00 " 16.50.....	2	4	93
16.50 " 17.00.....	1	4	95
17.00 " 17.50.....	0	2	98
17.50 " 18.00.....	0	0	100

This table was taken from "Anatomical or Physiological Age," Pedagogical Seminary, June, 1908, an article by C. Ward Crampton, M. D., Supervisor of Physical Training, New York City. This table is based on the records of 4,800 boys in a New York high school.

It appears from Table XIII that no one age can be designated as *the age of the beginning of pubescence*. Dr. Crampton found, however, from a study of 3,835 cases (high school boys) that, "for the ending of prepubescence and the beginning of pubescence, the middle of the mean years is 14.00 years, the average date is 13.44 years, with a variability of, more or less, 1.51 years."<sup>2</sup> No similar data for girls, so far as we know, are available. The average age of puberty (maturity) is, however, well established by Foster, who found the average age to be fourteen for 4,000 American girls.

While there is need of further data pertaining to both boys and girls with respect to the number of prepubescent, pubescent, and postpubescent children in different age groups, there is still greater need for data concerning what time during pubescence there appear the physical vigor

<sup>1</sup> Hall: "Adolescence," Vol. II, Ch. VII.

<sup>2</sup> American Physical Education Review, 1908, p. 146.

and the mental and emotional development which make necessary a change of school methods and régime. Are these concomitant, as a rule, with the beginning, the middle, or the end of the period? The general impression is that they more often appear at the beginning of the period; yet it must be confessed that but little data have been collected on this point.

Making the data at hand the basis of judgment, it appears that children, as a class, cannot, with profit, be kept under the régime of the elementary school much, if any, beyond fourteen. In fixing on fourteen as the upper age limit for the work of the elementary school we do no violence to educational practice, except in a few large cities,<sup>1</sup> and are in accord with the Compulsory Education Laws of New York and of other states; also in accord with a recent declaration of the National Education Association.<sup>2</sup> *Even if fourteen is accepted as the upper age limit for attendance on the elementary school, this age limit should be subjected to an experimental test and raised or lowered according as experience dictates.* Further, the organization and the administration of the school should be made so flexible that children maturing before fourteen may continue their elementary education under conditions other than those ordinarily found in the elementary school,<sup>3</sup> and that children maturing after fourteen may, on completing their elementary education, continue their schooling under conditions other than those generally found in the high school. For neither should the child be kept under the régime of the elementary school after maturity,<sup>4</sup> nor be placed in the high school before maturity;<sup>5</sup> the one is as detrimental as the other. In a word, fourteen may be taken as the upper age limit for the period of elementary education, but each child should be made the subject of consideration; and, so far as possible, the organization and régime of the school should be adapted to the physiological age of each child.

Little regard is paid in New York City to the limits (six to fourteen) of the elementary school period, for thousands of children are subjected to the régime of the elementary school long after their fourteenth birthday. Of the children thirteen to fourteen years old on the register each year, June 30, after promotion, from 1905 to 1908 inclusive, 64.81 per cent. continued in school one additional year; 27.41 per cent. continued two additional years; and 7.95 per cent. continued three and more additional years. (See table below.<sup>6</sup>) In consequence, an ele-

<sup>1</sup> See Strayer: Age-Grade Census of Schools and Colleges, United States Bureau of Education, 1911.

<sup>2</sup> Proceedings of the National Education Association, 1911, p. 32.

<sup>3</sup> See Bachman's Report on the Intermediate School, pp. 38-43.

<sup>4</sup> See results of an experiment in a public school of New York City; Crampton, Journal of Education, Boston, April 25th and May 2d, 1912.

<sup>5</sup> See results of an experiment in a high school of New York City; Crampton, The Influence of Physiological Age Upon Scholarship, Physiological Clinic, June, 1907.

<sup>6</sup> The table on p. 41 shows for each of the years 1905 to 1908, inclusive, the number of children on register June 30th, after promotion, thirteen to fourteen; the number one year later, fourteen to fifteen; the number two years later, fifteen to sixteen, and the number three years later, sixteen and over; also the total number for the period in each age group and the per cent. of those thirteen to fourteen continuing one, two, and three or more years.

mentary school in the City of New York, from the point of view of the age of its pupils, is not an elementary school, but an elementary school, a high school, and a college, all within the elementary schools.

The practice of holding pupils in the elementary schools of the City of New York long after they are fourteen years of age<sup>1</sup> should be discontinued and attendance should be limited to the period between six and fourteen. To be sure, the education of children fourteen years of age who are still floundering in the fourth or fifth grade is not to be considered complete; but the further education of such children should not be regarded as the legitimate work of the ordinary elementary school.

Late entrance to school is one reason why children continue in the elementary schools of the city long after they are fourteen years old, but there are other factors, such as absence, inability to use the English language, retardation, crowded classrooms, and poor teaching,<sup>2</sup> which, together with the requirements of the course of study, make it impossible for the great majority of children to complete the elementary school within the limits of the period (six to fourteen). That children need to remain one, two, three, and even four years after becoming fourteen to complete the course of study—and some of them do not complete it even then—shows to what extent the proper length of the period of

Year 13-14	Age				Year 16 and Over
	13-14	14-15	15-16	16 and Over	
1905	51,511	31,951	12,203	3,752	1908
1906	53,959	34,124	14,465	4,526	1909
1907	58,653	38,444	17,133	4,933	1910
1908	60,235	40,885	17,692	4,624	1911
Total.....	224,358	145,404	61,493 <sup>*</sup>	17,835	....
Per Cent. 13-14 Continuing..		64.81	27.41	7.95	....

The data for this table were computed from the annual reports of the City Superintendent of Schools for the years 1905-11.

Few children enter the elementary school at fourteen to fifteen or older (for those entering the 1A grade fourteen and above, see Annual Report of the City Superintendent of Schools for 1911, p. 61), so the only children fourteen to fifteen there can be on register after promotion June, 1906, are the children thirteen to fourteen on register after promotion June, 1905, who remain in school; the same is true of each later age group. Hence, the children in each later age group are the same children that are in the thirteen-to-fourteen-year-old age group. Also there may be a few pupils leaving school at thirteen to fourteen who return at fifteen to sixteen, but it is unreasonable to suppose that the number of such children is large enough to affect the per cent. of the children thirteen to fourteen remaining in school thereafter one, two, and three years.

<sup>1</sup> Annual Report of the City Superintendent of Schools for 1911, Table XXVIII, p. 54.

<sup>2</sup> See Dr. McMurry's Report on the Quality of Instruction in New York City Kindergartens and the Elementary Public School.

elementary education has been disregarded, and to what extent, considering the conditions under which children have to work, their progress is retarded by the excessive requirement that all of them shall complete the same course.

(b) *Disregard of the Length of Attendance Within the Limits of the Elementary School Period.*—If six is made the age of entrance to the elementary school—the present legal age of entrance—and the fourteenth birthday is made the upper age limit of the elementary school period—practically the present upper age limit of the Compulsory Education Law—children will actually be in school within the limits of this period somewhat less than eight years. In consequence, the actual total length of the elementary school course of study should be somewhat short of eight school years.

There are no data at hand to show how long children are actually in attendance on the elementary schools of the city by their fourteenth birthday. This can, however, be estimated with reasonable accuracy. Children enter the elementary schools of the city at twelve to thirteen years of age and even older; the number of such children is, however, so small that they do not materially add to the number of pupils in the twelve-to-thirteen-year-old age group, or to the number of pupils in any other age group.<sup>1</sup> There are also children entering under six years of age, but the number is relatively small, and, for this reason, these pupils may be included among those entering at six. Hence, in estimating the actual length of attendance by fourteen, children may be regarded as entering the elementary schools of the City of New York at from six up to twelve years of age.

Table XIV shows for each of the years 1904-1906, inclusive, the number of children on register, June 30, six years old and under; the number one year later, seven to eight; two years later, eight to nine; three years later, nine to ten; four years later, ten to eleven; and five years later, eleven to twelve; also the total number for the period in each age group, the total number entering at each age, and the per cent. entering at each age:

<sup>1</sup> Working papers showing this have been filed with the Committee on School Inquiry.

Table XIV

Year Entering	Age						Year 11-12
	6 and Under	7-8	8-9	9-10	10-11	11-12	
1904.....	33,310	55,074	62,070	66,500	66,318	68,436	1909
1905.....	36,686	54,185	62,335	64,354	65,919	66,638	1910
1906.....	39,364	57,294	64,424	67,119	69,709	70,155	1911
Total of Each Age Group.....	109,360	166,553	188,829	197,973	201,946	205,229	....
Number Entering at Each Age.....	109,360	57,193	22,276	9,144	3,973	3,283	....
Per Cent. Entering at Each Age.....	53.29	27.87	10.85	4.46	1.93	1.60	....

The figures for this table were compiled from the annual reports of the City Superintendent of Schools for 1904-1911. The only way, of course, for the number of children six years of age to be larger in 1905 than in 1904 is for children seven years of age to enter school during 1905. To find, therefore, the number of children entering at a given age, i. e., at eleven to twelve, subtract from the number of pupils of the given age the number in the next lower age group and the remainder will be the number entering at the given age. The per cent. entering at a given age is found by finding what per cent. the number entering at a given age is of the eleven-to-twelve-year-old group.

It appears from Table XIV that 53.29 per cent. of the children in the elementary schools of the city enter at six to seven; 27.87 per cent. at seven to eight; 10.85 per cent. at eight to nine; 4.46 per cent. at nine to ten; and 1.93 per cent. at ten to eleven; and 1.60 at eleven to twelve. Some of the children entering at an advanced age have undoubtedly been in the elementary schools of other places, but it is equally true that some of these over-age pupils are entering the elementary school for the first time.<sup>1</sup>

Using these per cents. as the basis of judgment, we estimate that, out of each hundred pupils thirteen to fourteen years old in the elementary schools of the city, fifty-three will have been in attendance eight years by their fourteenth birthday; twenty-eight, seven years; eleven, six years; four, five years; two, four years; and two, three years—the equivalent of an attendance per pupil of 7.2 years.<sup>2</sup>

There are three ways in which the time pupils are in attendance by fourteen on the elementary schools of the city may be lengthened: (1) by decreasing the amount of irregular attendance; (2) by enforcing the Compulsory Education Law with a rigorous hand, thereby compelling pupils living in the city to enter school at seven; and (3) by educating

<sup>1</sup> Annual Report of the City Superintendent of Schools, 1911, Table XXXIII, p. 61.

<sup>2</sup> This estimate takes no account of the time that may have been lost by irregular attendance, or of the time pupils entering late may have been in the elementary schools of other places.

the people of the city to the importance of sending their children to school at six. There are, however, factors that seriously militate against children entering at six, notably, traffic conditions. Yet it ought to be possible to increase materially the number entering at this age; the further development of the kindergarten alone would contribute much to this end. It is apparent, however, that, after all has been done that it is possible to do, the attendance of pupils by fourteen would, on the average, be probably considerably less than eight years.

In view of the age limits for the work of the elementary school, six to fourteen, and, in view of the estimated actual average attendance during this period of New York City children, the elementary schools of the city are face to face with the problem of giving children an elementary education in from 7.2 years to something less than eight years. Hence, if children are to be able to complete their elementary education by fourteen, the actual total length of the course of study in the elementary schools of the city should be somewhat short of eight school years.

But, in determining the actual total length of the elementary school course of study for the city, little attention has been given to the actual length of time children are in attendance on school by fourteen, or to the number of years it actually takes pupils to complete the present course of study.<sup>1</sup> While pupils are, as we have seen, probably in attendance by fourteen on the average 7.2 years, 64.81 per cent. of all pupils thirteen to fourteen, exclusive of those graduating, continue in school between 7.2 and 8.2 years; 27.41 per cent. between 8.2 and 9.2 years; and 7.95 per cent. between 9.2 and 10.2 years.<sup>2</sup> Yet less than 42 per cent. of the pupils entering the elementary schools of the city ever complete the course of study.<sup>3</sup>

Further, of those graduating during the last six years but 23.36 per cent. were under fourteen; 36.68 per cent. were from fourteen to fifteen; 27 per cent. from fifteen to sixteen; 10.62 per cent. from sixteen to seventeen; and 2.34 per cent. were seventeen and over, or 76.64 per cent. were fourteen years old and over. (See table on page 45.) On the assumption that these graduates were in attendance on the average 7.2 years by fourteen, it therefore took 36.68 per cent. of them from 7.2 to 8.2 years to complete the course; 27 per cent. from 8.2 to 9.2 years; 10.62 per cent. from 9.2 to 10.2 years; and 2.34 per cent. from 10.2 to 11.2 years. Hence, on the foregoing assumption, the actual total length of the present elementary school course of study exceeds, by from one to four years, the actual time 76.64 per cent. of pupils are in attendance by their fourteenth birthday.

<sup>1</sup> The only data ever collected in the City on the number of years it takes pupils to complete the present elementary school course of study were those collected by Dr. Leonard P. Ayres of the Russell Sage Foundation. While these data were presented to the educational authorities of the City, they have never been published in detail.

<sup>2</sup> See note, pp. 40 and 41.

<sup>3</sup> See table, p. 35.

(c) *Disregard of Varying Abilities and Educational Needs of Different Groups of Children.*—The difference between children may be characterized as internal and as external. Among the internal differences are those of interest and capacity. Arithmetic is of interest to some children; the heroic and human, in literature and history, to others; whereas music, drawing, and manual training appeal strongly to others. Some children do well in literature; others in mathematics and science; while others are gifted with artistic ability and mechanical skill. The interests and ability of certain children incline them toward the professions; of others toward administrative and managing vocations; and, of others, toward industrial pursuits and commercial activities. Present methods of determining interest and capacity are, to be sure, crude; yet it is possible to group children with reasonable accuracy on the basis of inclination and ability.

Among the external differences influencing the educational needs of children are the immediate conditions without the home and within the family. It is obvious that the educational needs of a child in a district where the streets are clean, where the homes are spacious, where the language of the child's playfellows is pure, and where life in general is permeated with the spirit and ideals of America—it is obvious that the educational needs of such a child are different from those of a child who lives in a foreign and tenement section. It is equally obvious that the educational needs of a child from a home where a foreign tongue is the prevailing language, where the parents are foreign born, and ignorant of American customs, institutions, and ideals, are different from the educational needs of the child who is born of American parentage and who absorbs from birth the spirit of our institutions and life.

Equally influential, with the cultural conditions without and within the family, in determining the educational needs of children is the financial status of the home, because it is the financial status of the home

Year Graduated	Age at Graduation from Elementary School										
	Total	Under 13	13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	Over 21
1906	19,353	779	4,396	7,134	4,971	1,740	300	32	1	.....	.....
1907	21,111	663	4,667	7,794	5,475	2,070	392	41	5	3	1
1908	23,509	722	4,821	8,626	6,377	2,459	442	53	8	.....	1
1909	27,152	730	5,444	9,811	7,496	3,014	558	82	9	5	3
1910	31,341	716	6,279	11,313	8,578	3,607	764	77	4	3	.....
1911	35,329	743	6,903	13,206	9,708	3,862	802	86	over 19 19	.....	.....
Total of Each Age.....	157,795	4,353	32,510	57,884	42,605	16,752	3,258	371	46	11	5
Per Cent. Graduating at Each Age.	.....	2.76	20.60	36.68	27.00	10.62	2.06	.24	.03	.007	.003

Figures for this table were compiled from the annual reports of the City Superintendent of Schools for 1906-11.

which determines for a majority of children whether the elementary school will be the only school they will ever attend or whether they will also go to high school, to college, or to the university. So great is the economic pressure on the larger number of homes that the school life of the majority of children must end at the time when they can legally join the ranks of wage-earners. In a word, the majority of children, by reason of the economic status of the home, will attend the elementary school only. This being true, it should be apparent that the educational needs of such children are very different from the needs of children who are so situated that they may continue their education in higher institutions.

New York City not only has the largest elementary school population in the world, but this population is also the most heterogeneous. In the elementary schools of the city there are children of each of at least fifty-four<sup>1</sup> nationalities; these children represent the very widest differences in inclination and in native ability, in cultural influences without and within the family, and in the financial status of the home. Yet these differences have been very largely disregarded in the development of the present elementary school course of study and in the determination of its requirements. There is but one course of study for all children in regular classes, whether their ability be of a low or of a high order, whether they are of foreign-born or of American-born parentage, whether they live on the lower East Side or in Queens, whether they will stop school as soon as the law permits or will continue in school, whether on graduating from the elementary school they purpose to go to work or purpose to go to an academic, technical, or commercial high school. Whatever the inclination, the ability, the particular educational need of the child, each must meet the same requirements and pursue the same course of instruction.

The effect of disregarding the varying abilities and educational needs of different groups of children and of the failure to provide a number of different elementary school courses of study of varying quantitative requirements is revealed in the fact that, of the pupils in regular classes thirteen to fourteen years old on register after promotion June 30, for the five years, 1907-1911, inclusive, but 20.82 per cent. had attained the eighth grade; 29.92 per cent. the seventh; 25.57 per cent. the sixth; 15.44 per cent. the fourth; and 2.19 per cent. were still lingering in the third and lower grades. (See table below.<sup>2</sup>)

<sup>1</sup> See report on Races in the Different High Schools, 1908, on file at the office of the City Superintendent of Schools.

<sup>2</sup> The table on p. 47 shows for each of the years 1907-1911, inclusive, the number of children thirteen to fourteen years old in each grade from the first to the eighth, inclusive; also the total number for the period in each grade, the total in all grades, and the per cent. of the total number in each grade.



The effect is also revealed by the fact that, of all the pupils on register in regular classes June 30, 1911, after promotion, 23.30 per cent., or practically each fourth child, was behind his grade for his age;<sup>1</sup> and further, despite the fact that many pupils remain in the elementary schools of the city one, two, and three years after they are fourteen, of all those entering but 88.71 per cent. reach the sixth grade; 61.45 per cent. the seventh grade; 47.57 per cent. the eighth grade, and only 41.33 per cent. are ever able to complete the course.<sup>2</sup>

(d) *Summary.*—It is evident, in view of the foregoing, that the present elementary school course of study has been developed and is administered, first, without due regard to the length of the elementary school period, i. e., to the age limits within which children may with profit be subjected to the régime of the elementary school; second, without due regard to the actual length of time children are in attendance by fourteen, hence to the actual length of time the school has in which to give children an elementary education; and, third, without due regard to the varying abilities and educational needs of different groups of children, hence to the number able to complete the course; all of which has reacted to keep the rate of promotion below what it might have been under more favorable conditions.

#### (4) Changes Needed to Attain the Maximum Rate of Promotion

From the foregoing it is apparent that the changes needed in order to attain in the elementary schools of the city the maximum rate of promotion are:

(a) That the actual total length of each of the different elementary school courses of study be made to correspond (1) with the length of the period between six<sup>3</sup> and fourteen,<sup>4</sup> i. e., to the period children may

Year Ending June 30	Number of Children 13-14 by Grades								Total
	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade	7th Grade	8th Grade	
1907	58	268	1,185	3,728	9,929	14,307	15,210	9,758	54,443
1908	51	274	1,240	3,961	9,618	14,359	16,089	10,526	56,118
1909	42	150	1,065	3,796	9,416	15,305	17,340	12,055	59,169
1910	38	136	859	3,099	8,122	15,017	18,413	13,001	58,685
1911	45	141	705	2,745	7,096	14,168	18,552	14,239	57,691
Total.....	234	969	5,054	17,329	44,181	73,156	85,604	59,579	286,100
Per Cent. of Total in Each Grade...	.08	.34	1.77	6.06	15.44	25.57	29.92	20.82	.....

(The data for this table were computed from the annual reports of the City Superintendent of Schools for 1907-1911.)

<sup>1</sup> See Table XII, p. 31.

<sup>2</sup> See table, p. 35.

<sup>3</sup> Probably the best age of entrance.

<sup>4</sup> Probably the beginning of pubescence and the age when children need a régime different from that of the elementary school.

with profit be kept under the régime of the elementary school, and (2) with the length of time pupils may reasonably be expected to be in actual attendance during this period.

(b) That the requirements of the elementary school be adapted to the varying abilities and educational needs of different groups of children, and such that all normal<sup>1</sup> children in regular attendance are able by fourteen to complete an elementary school course of study; hence as many courses of study of varying requirements as there are distinct groups of children of different abilities and educational needs. A brief discussion of each of these suggested changes follows:

(a) *Adjusting the Length of the Different Courses of Study.*—While the elementary school course of study is, in theory, as a rule eight years in length, what its actual total length is has seldom been taken into account. The course of study is prescribed and pupils wishing to complete it must remain in school until its requirements are met, whether this takes eight years, ten years, or twelve and more years. The course of study could easily be made so long that to complete it would hold pupils in the elementary school until they were twenty-one and older. But it is obviously unwise educationally to make the elementary course of study actually longer by one, two, or three years than the length of time the rank and file of children may be expected to be in attendance—between six and fourteen—because, by such a procedure, not less than 42 per cent. of all the children who enter ever complete the elementary school. If, however, all normal children in regular attendance are to be able to finish an elementary course of study by fourteen, it should be evident that the actual length of each of the different courses offered must approximate closely the time children may with profit be held under the régime of the elementary school. Hence, instead of the length of the course of study determining the time children must remain in the elementary school, as is now the case, it is the time children may reasonably be expected to be in school between six and fourteen that must determine the actual total length of the course of study pursued.

The present course of study, with slight modifications, has been operative in the elementary schools of the city since 1905. Yet no one knows with exactness how long it is. The actual length of this course can only be determined as data are collected year by year with reference to length of time taken by normal pupils completing a given grade to do the work of that grade, and as these data are used to determine the actual length of each grade and of the entire course. Until this is done no one will know whether the present course of study is eight, nine, ten, or more years in length. Yet this course of unknown length is set up to be completed by the children who wish to graduate from the elementary school.

Likewise, no data have ever been collected on how long children

<sup>1</sup> Among normal children are included all pupils other than those physically and mentally defective, for whom special classes and special instruction should be provided.

are actually in attendance. The only way to determine this is to collect data, year by year, on the length of time children entering have been in attendance on the elementary schools of other places and of the city; and to collect data on the length of time children entering school for the first time in the city actually remain. Until such data are collected no one will know definitely how long children are actually in the elementary schools of the city, or how long they are in school between six and fourteen; consequently, it is impossible to determine what the actual total length of the courses of study should be.

It therefore appears that two sets of data fundamental to the proper adjustment and administration of a course of study in the City of New York are wholly lacking; (a) data on the actual total length of the present course of study, and (b) data on the actual length of time children are in attendance between six and fourteen.

(b) *Adjusting the Requirements and Determining the Number of Different Courses.*—The actual length of the elementary school course of study has been determined, in large measure, not in view of what the rank and file of children are able to accomplish within the limits of the time they may reasonably be expected to be in school by fourteen, but in view of certain assumptions of what is required of children entering high school and of the equally arbitrary assumptions of what pupils graduating from the elementary schools ought to know.

Experience has shown that it is impossible to make these academic and arbitrary standards real; and investigation<sup>1</sup> has shown that there is no uniformity in such standards even within the same system. In consequence, these standards vary, within the system, with the school; within a school, with the grade; also with the study. Indeed, there are practically as many academic standards in a given system as there are principals and teachers multiplied by the number of grades and by the number of studies in the curriculum.

Investigation shows also that these standards have been developed without regard to their effect. Their effect on the elementary schools of the city is revealed by the fact as stated above that, although pupils remain in school one, two, and three years after they are fourteen, less than 42 per cent. of those entering graduate;<sup>2</sup> by the fact that, of those graduating between 1906-1911, inclusive, 76.46 per cent. were fourteen and above;<sup>3</sup> and also by the fact that, of the pupils thirteen to fourteen years old, exclusive of those in special classes, on register June 30, after promotion, for the five years 1907-1911, inclusive, but 20.82 per cent. had attained the eighth grade; 29.92 per cent. the seventh; 25.57 per cent. the sixth; 15.44 per cent. the fifth; 6.06 per cent. the fourth; and 2.19 per cent. were still lingering in the third and lower grades.<sup>4</sup>

It is obviously unwise educationally for children to pursue a course

<sup>1</sup> See *Non-Promotion and Failures by Studies*, Board of Education, Cleveland, 1909.

<sup>2</sup> See table, p. 35.

<sup>3</sup> See table in note, p. 45.

<sup>4</sup> See note 2 and table, pp. 46 and 47.

of study which is out of proportion to their capacities and out of proportion to the time they will remain in school, and such that, at fourteen, they find themselves still in the fifth, sixth, seventh, or eighth grade. The best results can be achieved when children are permitted to pursue a course of study which they can complete within the time they will be in the elementary school between six and fourteen.

Children can be expected, as we have seen, to have been in the elementary schools of the City of New York, between six and fourteen, at least 7.2 years.<sup>1</sup> Hence, if children are to pursue an elementary school course of study which they will be able to finish, there must be as many courses of study, each complete in itself, in the elementary schools of the city as there are considerable groups of children of different abilities and educational needs; and the quantitative requirements of each of these courses must be determined, not in view of the demands of higher institutions, or in view of what may arbitrarily be thought desirable for children graduating from the elementary school to know, but in view of what the given group of children can accomplish between six and fourteen. In a word, instead of the quantitative requirements of the course of study determining the progress of children through the school, the actual progress of children through the school should determine the quantitative requirements of the course of study pursued.

Making the actual completion of an entire elementary school course of study by all normal children in regular attendance the basis of determining the requirements of the course of study in no way does away with the need of academic standards. It does, however, make these standards depend upon the actual progress of children through the school, and hence supplies an objective measure of whether the prevailing standards are too high or too low.

The adjustment of the course of study to the abilities and needs of different groups of children so that all normal children, regular in attendance, are able to cover a complete course of study between six and fourteen may be done in one of two ways: First, there may be one course for all schools in which there are both minimum and optional requirements, the minimum requirements being such as can be met by all normal pupils in regular attendance by fourteen, the optional requirements providing additional work for pupils able to do more than the minimum requirements. Second, there may be a number of distinct and complete courses, each with minimum and optional requirements, corresponding to the different groups of children of varying abilities and educational needs—at the very least, three such courses would probably be needed—one for bright pupils, one for pupils of medium ability, and one for dull pupils.<sup>2</sup> The development of different courses of study is, we believe, the preferable way of making the necessary adjustments.

<sup>1</sup> See p. 43.

<sup>2</sup> Demonstrations of the feasibility and effectiveness of providing different courses of study in the same school were made by Superintendent Ettinger when principal of P. S. 147, Manhattan, and as district superintendent in Richmond. Experiments along this line have also been carried on in Cleveland, Ohio.

The number of different courses of study needed in the elementary schools of the city can, to be sure, only be determined as data are collected on the abilities and educational needs of different groups of children. Similarly, the requirements of each of the different courses—that is, the character and quantity of subject matter and the quality of the work demanded of pupils—can only be finally determined as data are collected on the time taken in each course by normal pupils to complete each grade and used to modify the requirements so that all normal children in the given course in regular attendance are able to complete the course by fourteen.

### (5) The Maximum Rate of Promotion

Pupils are generally promoted or not promoted according as they have or have not met certain academic standards.<sup>1</sup> When the right to promotion is thus determined, as has already been pointed out, the rate of promotion varies with the school system; within the system, with the school; and within the school, with the grade and teacher. Such variations in rate of promotion do injustice to the child, because work that is rewarded with advancement in one school is not so rewarded in another; hence the number of grades a pupil is able to complete depends largely on the teacher he has and on the school he attends. Nor is there any hope that this will not be true so long as the rate of promotion is determined by purely arbitrary assumptions of what children graduating from the elementary school ought to know.

However contrary it may be to present ways of thinking and to present school practice, arbitrary high school entrance requirements and arbitrary assumptions of what elementary school graduates ought to know should not determine the rate of promotion in the elementary school. The purpose of the elementary school is not to give a few pupils favored either by inheritance or by home surroundings, or by both, an arbitrarily assumed amount of knowledge, or to give 42 per cent. of its pupils a complete elementary school course of instruction and to permit the other 58 per cent. to flounder about in the lower grades until they finally drop from school. The elementary school should give each normal child in regular attendance, within the period children may with profit be kept under the régime of the elementary school, a complete elementary school course, the course completed by each child varying with his ability and educational needs. In view of this conception of the time limits on its work, and of this conception of the purpose of the elementary school, the rate of promotion can only be determined in view of the rapidity with which normal children in regular attendance must advance in order to finish an entire elementary school course of study. Courses of study, to be most effective, must be planned with reference to the en-

<sup>1</sup> These academic standards rest on arbitrary assumptions of what is required of pupils entering high school and on equally arbitrary assumptions of what pupils graduating from the elementary school ought to know.

tire elementary school period. Hence, the rate of promotion in the elementary school ought ultimately to be uniformly about 100 per cent.

The maximum rate of promotion will be about 100 per cent., and not 100 per cent., because there are always a number of pupils in a system who are not in attendance during a given term sufficiently long to enable them to complete the work of any course that may be offered; but there are also a number of pupils who, by reason of beginning their school work at an advanced age, or by reason of being improperly classified, will be able to cover two terms of work in one term; in this way the terms of work lost will tend to balance the terms of work gained, and the rate of promotion thus maintained at about 100 per cent.

The maximum rate of promotion cannot be secured, however, by one school promoting 150 per cent.<sup>1</sup> of its pupils and another school 50 per cent., or, as in the City of New York, by one school promoting 110 per cent. and another 35 per cent., or by the promotion of 98 per cent. of the pupils in one grade of a school, and 57 per cent. in another grade of the same school. Such a procedure, on the one hand, enables children to complete the elementary school course of study before the beginning of pubescence, which is unwise; and, on the other hand, holds children in the elementary school beyond this period, and only permits part of the pupils ever to complete a course, hence defeats the very purpose of the elementary school. Consequently, the rate of promotion in each grade and in each school of a system should be uniformly about 100 per cent.

If it is found that a number of normal pupils in regular attendance are unable to do the work of a given grade in a given course the remedy is not the non-promotion of these pupils. These pupils should either be reclassified with respect to the course they should pursue or the requirements of the course they are following should be lowered. Similarly, if it is found that children in regular attendance are able to do more than is required by the course they are in, the remedy is not double promotion and the completion of the elementary school before the beginning of pubescence. These pupils should either be put in a more difficult course or the requirements of the course they are in should be raised. For the constant factors in the elementary school are (1) the actual total length of each of the several courses of study, and (2) the rate of promotion; the variable factors are (1) the abilities and needs of children, and (2) the particular courses of study that should be offered and the requirements of these courses. Hence, it is not the rate of promotion, and, in consequence, the actual total length of the courses of study, that should constantly vary, but the particular courses of study that should be offered and the requirements of these courses. It is these that must be constantly adjusted to the abilities and needs of the children with which each school has to do. Consequently, while the actual total length of the courses of study and the rate of promotion should be practically the same in all

<sup>1</sup> The rate of promotion for a term in a school is 150 per cent., when during the term 50 per cent. of the pupils of the school complete one term's work and 50 per cent. by receiving double promotion complete two terms' work.

the schools of a system, the particular courses of study offered and the requirements of these courses may, and generally should, vary with the school.<sup>1</sup>

## (6) Conclusions

That each normal child in regular attendance between six (probably the best age of entrance) and fourteen (probably the beginning of pubescence and the age when children need a régime different from that of the elementary school) may be able to complete an entire elementary school course of study, hence that conditions may be favorable to a maximum rate of promotion in the elementary schools of the city, we recommend:

- (a) That data be collected—
  - (1) On the best age of entrance to the elementary school.
  - (2) On the age at which children need a régime different from that of the elementary school.
- (b) That data be collected—
  - (1) On the number of normal children entering and completing the present course of study.
  - (2) On the actual total length of the present course of study.
  - (3) On the length of time normal children remain in attendance (including attendance on the schools of other places); also on the length of time children are in attendance between six and fourteen.
  - (4) On the groups of children of different abilities and educational needs.
- (c) That there be as many different courses of study as there are groups of children having different abilities and educational needs.
- (d) That the actual total length of these different courses of study and hence their requirements be made such that each normal child in regular attendance between six and fourteen is able to complete some one of these courses.
- (e) That the actual total length of each of these different courses of study and hence the requirements of each be continuously revised in view of data [suggested in (b)] collected by terms.<sup>2</sup>

## II.—Promotion, Non-Promotion, and Size of Class

One of the most important working conditions of any school is the size of class—the number of children one teacher is expected to instruct. When classes contain from fifty to sixty or more pupils it is impossible

<sup>1</sup> See Dr. McMurry's Report on Course of Study.

<sup>2</sup> Lack of time prevents us from including in this report a study of Methods of Making Promotions. Such a study should, however, be made.

for the teacher to give to each child adequate personal attention and direction. Hence, the efficiency of the school may be materially reduced by the presence of over-size classes.

### 1. Maximum Size of Regular Classes

The maximum size of a regular elementary school class<sup>1</sup> is fixed by the Board of Education of the city, at fifty. Principals, under the By-Laws of the Board, are free to organize classes up to fifty, but, if it becomes necessary, as is often the case, to put more than fifty pupils in a class, such a class cannot be formed without the permission of the Board of Superintendents.<sup>2</sup> Fifty is, therefore, recognized as the maximum beyond which the number of pupils in a class cannot be increased without reducing the efficiency of the school. While fifty is fixed as the maximum, and while the continued lack of adequate school accommodations makes it necessary to put tens of thousands<sup>3</sup> of children annually in classes having fifty and above, there is a strong feeling among the school officials of the city that, if the school is to do its work efficiently, the number of pupils per class ought not to exceed forty.<sup>4</sup> We share this feeling.

### 2. Number of Pupils in Classes of Each Size

What the actual size of class was in New York City and how the children were distributed at the end of the February-June term, 1911, among the classes of different sizes is shown by Table XV. This table gives, by grades, the number of pupils in regular classes on register before promotion June 30, 1911, in classes under thirty-five, thirty-five to forty, etc.; also the per cent. of the total register of each grade in the classes of each size:

<sup>1</sup>Regular classes are to be distinguished from special classes,—that is, from classes for backward, defective, crippled, blind, deaf, and anæmic children, all of which are smaller than regular classes. This report has to do only with regular classes.

<sup>2</sup>Manual of the Board of Education, Sec. 45-7, p. 56.

<sup>3</sup>Annual Report of the City Superintendent of Schools for 1910, pp. 94-95; also this report, Table XV, p. 55.

<sup>4</sup>Annual Report of the City Superintendent of Schools for 1904, p. 98.



Table XV

Grades	Total Register	Register by Grades in Regular Classes as of June 30, 1911						Per Cent. of Total Register of Each Grade in Classes of Each Size					
		Classes Under 35	35 to 40	41 to 50	51 to 55	56 to 60	Over 60	Classes Under 35	35 to 40	41 to 50	51 to 55	56 to 60	Over 60
1A	43,012	3,014	4,603	20,370	8,060	4,340	2,625	7.01	10.70	47.36	18.74	10.09	6.10
1B	49,832	2,487	8,204	29,381	7,530	2,230	.....	4.99	16.46	58.96	15.11	4.48	.....
2A	39,607	2,876	5,786	23,602	5,461	1,759	123	7.26	14.61	59.59	13.79	4.44	.31
2B	44,608	2,726	6,800	26,837	6,755	1,429	61	6.12	15.24	60.16	15.14	3.20	.14
3A	40,180	2,916	7,303	22,700	6,122	1,017	122	7.26	18.17	56.50	15.24	2.53	.30
3B	42,911	3,195	6,726	26,287	5,588	1,054	61	7.45	15.67	61.26	13.02	2.46	.14
4A	38,573	3,249	7,255	22,835	4,434	800	.....	8.42	18.81	59.20	11.50	2.07	.....
4B	39,909	3,330	7,863	23,830	4,429	457	.....	8.34	19.70	59.72	11.09	1.15	.....
5A	36,823	3,388	7,827	23,053	2,212	343	.....	9.20	21.26	62.60	6.01	.93	.....
5B	36,035	4,164	8,850	20,320	2,528	173	.....	11.56	24.56	56.38	7.02	.48	.....
6A	32,873	4,556	9,714	17,109	1,378	116	.....	13.86	29.55	52.05	4.19	.35	.....
6B	31,134	5,294	11,072	13,618	1,088	112	.....	17.00	35.56	43.73	3.35	.36	.....
7A	27,667	5,476	10,166	11,592	373	60	.....	19.79	36.74	41.90	1.35	.22	.....
7B	24,791	6,007	9,137	9,315	332	.....	.....	24.23	36.86	37.57	1.34	.....	.....
8A	21,112	5,834	7,324	7,695	259	.....	.....	27.64	34.68	36.45	1.23	.....	.....
8B	19,545	5,632	5,109	8,194	610	.....	.....	28.82	26.14	41.92	3.12	.....	.....
Total....	568,612	64,144	123,739	306,738	57,109	13,890	2,992	11.28	21.76	53.94	10.04	2.44	.53

The data for this table were computed from the reports made to the Committee on School Inquiry, June, 1911.

Of the 568,612 pupils on register in regular classes before promotion June 30, 1911, 64,144, or 11.28 per cent., were, it will be observed, in classes under thirty-five; 123,739, or 21.76 per cent., in classes of thirty-five to forty; 306,738, or 53.94 per cent., in classes of forty-one to fifty; 57,109, or 10.04 per cent., in classes of fifty-one to fifty-five; 13,890, or 2.44 per cent., in classes of fifty-six to sixty; and 2,992, or .53 per cent., in classes over sixty. Thus 494,621, or 86.98 per cent., were in classes of fifty and under, and 73,991, or 13.01 per cent., were in classes having more than fifty.

Of the 73,991 pupils in over-size classes—classes having fifty-one to fifty-five, fifty-six to sixty, and over sixty—

						Cumulative Per Cent.
15,025	or	20.31	per cent.	were	in the 1A Grade	20.31
9,760	"	13.19	"	"	" 1B "	33.50
7,343	"	9.92	"	"	" 2A "	43.42
8,245	"	11.14	"	"	" 2B "	54.56
7,261	"	9.81	"	"	" 3A "	64.37
6,703	"	9.06	"	"	" 3B "	73.43
5,234	"	7.07	"	"	" 4A "	80.50
4,886	"	6.60	"	"	" 4B "	87.10
2,555	"	3.45	"	"	" 5A "	90.55
2,701	"	3.65	"	"	" 5B "	94.20
1,494	"	2.02	"	"	" 6A "	96.22
1,150	"	1.56	"	"	" 6B "	97.78
433	"	.59	"	"	" 7A "	98.37
332	"	.45	"	"	" 7B "	98.82
259	"	.35	"	"	" 8A "	99.17
610	"	.83	"	"	" 8B "	100.00

Twenty and thirty-one one-hundredths (20.31) per cent., or one-fifth, of all the pupils in over-size classes at the end of the February-June term, 1911, it will be observed, were in the 1A grade; 54.56 per cent. in the 1A-2B grades; 87.10 per cent. in the grades 1A-4B; and 97.78 per cent. in the grades 1A-6B. In short, over-size classes were confined, at the end of the February-June term, 1911, to the 6B and lower grades.

If comparison is made, grade by grade, between the pupils within each grade in the classes of each of the several sizes (see Table XV) it will be noted that the per cent. of pupils in small classes gradually increases from the lowest to the highest grade. In classes under thirty-five the per cent. increases from 7.01 per cent. in the 1A to 28.82 per cent. in the 8B, and, in classes having thirty-five to forty, from 10.70 per cent. to 26.14 per cent. A corresponding decrease will be noted from the 1A to the 8B grades in the per cent. of pupils in over-size classes. In classes having fifty-one to fifty-six the per cent. decreases from 18.74 per cent. in the 1A to 3.12 per cent. in the 8B; in classes having fifty-six to sixty from 10.09 per cent. to zero; and in classes having over sixty from 6.10 per cent. to zero.

It, therefore, appears that the size of a class varies with the grade; that the 1A has the smallest number of small classes and the largest

number of large classes, and the 8B has practically the largest number of small classes and the smallest number of large classes.

The presence of large classes in the grades 1A-6B and of small classes in the grades 7A-8B is due partly to policy and partly to necessity. There is a feeling among the school officials of the city that classes in the upper grades should be smaller than in the lower grades. Hence, in schools where there are ample accommodations for all pupils, classes in the 7A-8B grades are so organized as to have from thirty-five to forty pupils, whereas, in the grades 1A-6B, classes range from forty to forty-five. In most cases, small classes in the upper grades and large ones in the lower grades are, however, due to necessity. In many districts, so many pupils leave school in the 6B grade and before that the numbers remaining in the 7A-8B grades are small. Unless these pupils are transferred to a central school, it is impossible to do otherwise than to have small classes. In contrast, the lower grades are crowded. To care for all the pupils in these grades, it is necessary to make the classes large.

Table XV shows there were 64,144 pupils on register June 30, 1911, in classes under thirty-five, and 73,991 in class of above fifty. It is generally agreed, as heretofore stated, that classes having fifty and above are too large for effective work; there is, however, equal unanimity of opinion that classes under thirty-five are too small—not too small for educational work of the very highest type, but too small to be economical. The presence in the system of a portion both of under-size classes (classes under thirty-five) and of over-size classes (classes above fifty) is due: (1) to a failure in the past to standardize classrooms (in the same building—particularly in old buildings—one classroom will accommodate thirty pupils, another sixty; while there are old buildings in which there are no rooms with a seating capacity above thirty-two to thirty-five); (2) to the rigid segregation of the sexes, particularly in the grades 1A-6B; (3) to a failure on the part of some principals to exercise care in the organization of classes (in the same grade, one class may have thirty-five pupils, another fifty-five); and (4) to a hesitancy on the part of principals to place in one class groups of pupils from two grades.<sup>1</sup> Should no buildings be constructed hereafter with regular classrooms having a seating capacity of less than forty to forty-five pupils; should the interior arrangements of certain old buildings be so changed that all classrooms in these buildings would be of standard size—accommodate from forty to forty-five pupils; should mixed classes, at least in the grades 1A-6B, be formed freely; should principals exercise more care in the organization of classes; and, finally, should the policy be made general of putting groups of pupils from two grades into one class<sup>2</sup>—if these things should be done the number of under-size classes could

<sup>1</sup> See Monthly Reports for April, 1911, on file at the office of the City Superintendent of Schools.

<sup>2</sup> This is now done at times, particularly in the boroughs of Richmond and Queens.

be lessened, and the number of over-size classes reduced approximately 10 per cent.<sup>1</sup>

### 3. Rate of Promotion in Classes of Each Size

The rate of promotion at the end of the February-June term, 1911, in the classes of each of the several sizes is shown by Table XVI. This table gives, by grades, the per cent. of the register in each size of class promoted at the end of the February-June term, 1911; also the per cent. not promoted. (See page 59.)

When the several grades are considered as a whole it will be observed that the highest per cent. of promotion was in classes under thirty-five, the rate being 89.36 per cent. The rate of promotion in classes of thirty-five to forty was, however, only .22 of 1 per cent. less, and, in classes of forty-one to fifty, only .41 of 1 per cent. less than in classes under thirty-five. Hence, for practical purposes, the rate of promotion was the same in all classes having fifty and under. But the rate of promotion in classes of fifty-one to fifty-five was lower than in classes under thirty-five by 1.68 per cent., in classes of fifty-six to sixty by 5.91 per cent., and in classes over sixty by 18.17 per cent. The major part of the difference in the rate of promotion, at least in classes of fifty-six to sixty, and in classes over sixty, in comparison with the rate of promotion in classes under thirty-five, was, however, due to the fact that pupils in the classes of these two sizes are principally in the lower grades, where the rate of promotion is relatively low. No such differences, it will be observed, appear, if comparison is made, grade by grade, between the rate of promotion in the classes of the several sizes.

The differences, such as they are, in the rate of promotion within each grade, in these different-size classes, become clearer, if all classes of fifty and under are combined and all classes of over fifty, and comparison is made between the rate of promotion in classes of these two sizes only. Table XVII gives by grades the per cent. of promotion in classes of fifty and under, in classes of over fifty, and the per cent. of promotion in classes of fifty and under, above or below the per cent. of promotion in classes over fifty; also the increase in number of pupils that would have been promoted in classes of over fifty at the rate of promotion in classes of fifty and under. (See page 60.)

In nine out of sixteen grades the higher rate of promotion at the end of the February-June term, 1911, was in classes of fifty and under; in seven the higher rate was in classes of over fifty. The rate of promotion was higher in classes of over fifty in the 1B, by .29 of 1 per cent.; in the 4B by .59 of 1 per cent.; in the 5A by 1.29 per cent.; in the 5B by .09 of 1 per cent.; in the 6B by 1.58 per cent.; in the 7B by 3.09 per

<sup>1</sup> The working papers have been filed with the Committee on School Inquiry. These papers give data for the schools of Manhattan, the Bronx, and part of Brooklyn, where reductions in the number of classes might have been made in 1911.

Table XVI

Grades	Per Cent. of Register by Grades in Each Size of Class Promoted						Per Cent. of Register by Grades in Each Size of Class Not Promoted					
	Classes Under 35	35 to 40	41 to 50	51 to 55	56 to 60	Over 60	Classes Under 35	35 to 40	41 to 50	51 to 55	56 to 60	Over 60
1A	75.35	80.32	77.04	74.94	73.66	68.57	24.65	19.68	22.96	25.06	26.34	31.43
1B	87.82	88.26	88.87	89.23	88.12	88.62	12.18	11.74	11.13	10.77	11.88	11.38
2A	91.45	87.94	89.09	90.08	85.05	81.80	8.55	12.06	10.91	9.92	14.95	8.20
2B	91.97	90.56	90.69	89.95	89.01	89.34	8.03	9.44	9.31	10.05	10.99	10.66
3A	90.98	90.55	89.59	89.25	88.89	89.34	9.02	9.45	10.41	10.75	11.11	8.20
3B	90.64	89.40	91.22	90.35	89.47	91.80	9.36	10.60	8.78	9.65	10.53	8.20
4A	89.75	90.20	90.20	89.26	85.25	88.65	10.25	9.80	9.80	10.74	14.75	8.20
4B	92.04	90.82	89.60	90.77	89.93	88.65	7.96	9.18	10.40	9.23	10.07	8.20
5A	88.37	89.28	88.65	89.78	91.84	88.65	11.63	10.72	11.35	10.22	8.16	8.20
5B	89.72	89.50	89.83	89.99	87.28	88.65	10.28	10.50	10.17	10.01	12.72	8.20
6A	89.11	89.26	88.92	87.81	92.24	88.65	10.89	10.74	11.08	12.19	7.76	8.20
6B	88.74	89.05	89.90	90.66	93.75	88.65	11.26	10.95	10.10	9.34	6.25	8.20
7A	88.75	87.99	87.82	82.84	71.67	88.65	11.25	12.01	12.18	17.16	28.33	8.20
7B	88.95	88.34	89.89	92.17	81.85	88.65	11.05	11.66	10.11	7.83	8.20	8.20
8A	89.70	89.45	89.72	81.85	88.65	88.65	10.30	10.55	10.28	18.15	8.20	8.20
8B	93.64	93.87	95.20	96.56	88.65	88.65	6.36	6.13	4.80	3.44	8.20	8.20
Total.....	89.36	89.14	88.95	87.68	83.45	71.19	10.64	10.86	11.05	12.32	16.55	28.81

The data for this table were computed from the reports made to the Committee on School Inquiry, June, 1911.

Table XVII

Grades	Per Cent. of Promotion in Classes of 50 and Under	Per Cent. of Promotion in Classes of Over 50	Per Cent. of Promotion in Classes of 50 and Under Above or Below the Per Cent. of Promotion in Classes Above 50	Increase in Number That Would Have Been Promoted in Classes Over 50 at Rate in Classes of 50 and Under
1A	77.40	73.46	3.94	592
1B	88.68	88.97	-.29	-29
2A	89.10	88.85	.25	19
2B	90.76	89.80	.96	79
3A	89.92	89.20	.72	52
3B	90.83	90.23	.60	40
4A	90.15	88.65	1.50	78
4B	90.10	90.69	-.59	-29
5A	88.77	90.06	-1.29	-33
5B	89.73	89.82	-.09	-2
6A	89.06	88.15	.91	14
6B	89.38	90.96	-1.58	-18
7A	88.07	81.29	6.78	29
7B	89.08	92.17	-3.09	-10
8A	89.62	81.85	7.77	20
8B	94.38	96.56	-2.18	-13
Net Increase	.....	.....	....	789

cent.; and in the 8B by 2.18 per cent. But the difference in the rate of promotion was either so small or the pupils in the given grade were so few that the higher rate of promotion in classes above fifty in these seven grades makes a difference of only 134 promotions.

In each of the grades 1A-4A—containing 80 per cent. of all pupils in over-size classes<sup>1</sup>—the rate of promotion, with the exception of the 1B grade, was higher in classes of fifty and under. But, with the exception of the 1A grade, the differences in the rate of promotion are too small to materially affect the number of promotions. The higher rate for classes of fifty and under in the 2A grade would have increased the number of promotions in classes of over fifty by nineteen—the equivalent of one additional 2A promotion to each 386 pupils; in the 2B by seventy-nine—the equivalent of one additional 2B promotion to each 104 pupils; in the 3A grade by fifty-two—the equivalent of one additional 3A promotion to each 139 pupils; in the 3B by forty—the equivalent of one additional 3B promotion to each 167 pupils; and in the 4A grade by seventy-eight—the equivalent of one additional 4A promotion to each sixty-seven pupils. In the 1A grade, however, the higher rate of promotion would have increased the number advanced by 592—the equivalent of one additional promotion to each twenty-five 1A pupils in classes of over fifty. The rate of promotion in classes of fifty and under was also higher in the 7A by 6.78 per cent., and in the 8A by 7.77 per cent. The number of pupils in these grades was, however, small, so that, had the

<sup>1</sup> See table, p. 56.

higher rate for classes of fifty and under prevailed in classes of over fifty, the number of 7A promotions would have been increased only twenty-nine, and the number of 8A promotions only twenty.

Thus, although the higher rate of promotion is found, in the majority of grades, in classes of fifty and under, this higher rate is so small that, had promotions in each of the several grades been the same for classes of over fifty as for classes of fifty and under, there would have been, in classes of over fifty, a net increase of only 789 promotions out of a total of 73,991 pupils—the equivalent of one additional promotion to each ninety-four pupils in classes of over fifty.

#### 4. Elimination of Over-Size Classes

The fact that the rate of promotion for all grades, with the exception of the 1A, at the end of the February-June term, 1911, was practically the same in the classes of the several sizes is, however, not sufficient evidence that the opportunities enjoyed and the instruction received by children in the classes of the several sizes are equally good. Rate of promotion merely indicates the per cent. of children advanced but in itself does not indicate the relative educational opportunities and achievements of the children. Children may be promoted for reasons other than that they are prepared for the work of the next grade, i. e., it may be necessary to promote pupils in order to make room for children entering the school. Data derived from tests of the educational achievements of children are not at hand to show to what extent classes having over fifty pupils offer less favorable opportunities for work than smaller classes. Teachers and school officials are, however, a unit in the opinion that classes having fifty pupils and above are too large and should be eliminated.

In view of the number of pupils (73,991) at the end of the February-June term, 1911, in classes having over fifty, we estimate<sup>1</sup> that, to reduce all over-size classes to forty-five pupils per class, exclusive of the possible reduction in the number of such classes by the changes and improvements in organization suggested above,<sup>2</sup> would require an investment in buildings of approximately \$2,500,000, and probably \$50,000 annually for upkeep and maintenance; also for the salaries of additional teachers an annual minimum of not less than \$180,000.<sup>3</sup>

<sup>1</sup>The actual number of over-size classes was estimated by dividing the number of pupils in classes of fifty-one to fifty-five by fifty-three, the probable median size of these classes; by dividing the number of pupils in classes of fifty-six to sixty by fifty-eight, the probable median size, and by dividing the number of pupils in classes of sixty and above by sixty. The number of classes needed to care for all pupils in over-size classes at forty-five per class was estimated by dividing the total number of pupils in over-size classes by forty-five. The difference between the two estimates was then reduced by 10 per cent., in view of the probable reduction through the administrative changes suggested above, in order to find the number of additional classes for which provision should be made to reduce all over-size classes to forty-five pupils per class.

<sup>2</sup>See p. 57.

<sup>3</sup>These estimates are based on the cost of new buildings as given in the Corporate Stock Requirements submitted by the Board of Education, March, 1911, on the cost of sites as given in the Annual Financial and Statistical Report of the Board of Education for 1910, and on Salary Schedules for Teachers, 1912.

### 5. Over-Size Classes as a Factor in Non-Promotion and Congestion

There were, as we have seen, only 789 less promotions among the 73,991 pupils in over-size classes than there would have been had these pupils been promoted at the rate for classes of fifty and under. But, in the 1A grade alone, by reason of the lower rate, the promotions were, as we have seen, less by 592—the equivalent of one less promotion to each twenty-five 1A pupils in over-size classes. Hence, as promotions were made at the end of the February-June term, 1911, over-size classes were no material factor, except in the 1A grade, in increasing the number of non-promotions.

It is reasonable to assume that the small number of non-promoted children (197) caused by the slightly lower rate of promotion prevailing in the grades above the 1A was absorbed in the classes already found in these grades, and that, to care for the non-promotions (592) caused by the decidedly lower rate of promotion in the 1A grade, it would be necessary to form only a few, if any, additional 1A classes. Hence, as promotions were made at the end of the February-June term, 1911, over-size classes contributed but slightly, if at all, to congestion.

### 6. Conclusions

The foregoing discussion may be summarized thus:

(1) There were, at the end of the February-June term, 1911, 73,991 pupils in over-size classes—that is, in classes having fifty and above. The greater number of over-size classes was in the grades 1A-6B.

(2) The size of class varies with the grade; the 1A grade has the smallest number of small classes and the largest number of large classes, while the 8B grade has the largest number of small classes and the smallest number of large classes.

(3) Both the number of under-size classes (classes having under thirty-five) and of over-size classes (classes of fifty and above) can be reduced approximately 10 per cent. through administrative changes.

(4) The rate of promotion for all grades, with the exception of the 1A grade, at the end of the February-June term, 1911, was practically the same in the classes of the several sizes.

(5) As promotions were made at the end of the February-June term, 1911, over-size classes were no material factor, except in the 1A grade, in increasing the number of non-promotions, and contributed but slightly, if at all, to congestion.

(6) Although there was only a very slight difference, with the exception of the 1A grade, in the rate of promotion at the end of the February-June term, 1911, for classes under fifty and for classes over fifty, and although data derived from tests of the educational achievements of



children are not at hand to prove to what extent classes having over fifty offer less favorable opportunities for work than smaller classes, teachers and school officials are a unit in the opinion that classes having over fifty pupils should be eliminated and that all classes should be reduced to at least not more than forty-five pupils. To accomplish this, in view of conditions at the end of the February-June term, 1911, would require for buildings approximately \$2,500,000 and probably \$50,000 annually for upkeep and maintenance; also, for salaries of additional teachers, an annual minimum of not less than \$180,000.

### III.—Promotion, Non-Promotion, and Absence

The school year in the City of New York is forty weeks in length, divided into two terms of twenty weeks each. Holidays reduce the actual length of a term to somewhat less than one hundred days. Any considerable absence, due either to irregular attendance or to late entrance, naturally affects the educational progress of children.

#### I. Number of Children Absent Ten Days and Less, Eleven to Twenty, Etc.

For the purpose of studying the effect of absence<sup>1</sup> on the educational progress of children, pupils have been grouped on the basis of their being absent a given number of days during the February-June term, 1911. Table XVIII gives by grades the number of pupils on register in regular classes June 30, 1911, absent ten days and less, eleven to twenty, twenty-one to thirty, etc.; also the per cent. of the total register of each grade absent ten days and less, eleven to twenty, etc. (See page 64.)

Of the 568,612 pupils on register in regular classes June 30, 1911, 382,406, or 67.25 per cent., were absent during the February-June term, 1911, ten days and less; 97,512, or 17.15 per cent., eleven to twenty days; 39,391, or 6.93 per cent., twenty-one to thirty days; 19,297, or 3.39 per cent., thirty-one to forty days; and 30,006, or 5.28 per cent., forty-one days and above.

The Compulsory Education Law operates primarily on children between the ages of seven and fourteen; according to its provisions, children between these ages must be in attendance the entire time school is in session. The great majority of the children in the grades 2A-6B are between these age limits. It is, therefore, astonishing that 65,450, or 17.10 per cent. of all the children in these grades, should be absent during the February-June term, 1911, eleven to twenty days; 25,359, or 6.63 per cent., absent twenty-one to thirty days; 11,939, or 3.12 per cent., absent thirty-one to forty days; and 15,705, or 4.10 per cent.—the equivalent of one in each twenty-five—absent forty-one days and above.<sup>2</sup>

<sup>1</sup> It is impossible to distinguish in this report between absence due to irregular attendance and absence due to late entrance.

<sup>2</sup> For a discussion of the Compulsory Attendance Service, see Dr. Burks's report.

Table XVIII

Grades	Total Register as of June 30, 1911	Register in Regular Classes as of June 30, 1911					Per Cent. of Total Register in Each Grade				
		Absent 10 Days and Less	11 to 20	21 to 30	31 to 40	41 and Above	Absent 10 Days and Less	11 to 20	21 to 30	31 to 40	41 and Above
1A	43,012	17,215	8,708	5,010	3,188	8,891	40.02	20.25	11.65	7.41	20.67
1B	49,832	28,342	10,800	4,938	2,489	3,263	56.88	21.67	9.91	4.99	6.55
2A	39,607	24,826	7,743	3,240	1,612	2,186	62.68	19.55	8.18	4.07	5.52
2B	44,608	29,970	8,063	3,130	1,572	1,873	67.19	18.08	7.02	3.52	4.19
3A	40,180	27,841	8,665	2,690	1,190	1,594	69.29	17.09	6.69	2.96	3.97
3B	42,911	30,157	7,146	2,684	1,257	1,667	70.28	16.65	6.25	2.94	3.88
4A	38,573	26,943	6,445	2,494	1,194	1,497	69.85	16.71	6.47	3.09	3.88
4B	39,909	28,057	6,575	2,552	1,159	1,566	70.31	16.47	6.39	2.91	3.92
5A	36,823	25,420	6,285	2,424	1,148	1,546	69.03	17.07	6.58	3.12	4.20
5B	36,035	25,312	5,958	2,293	1,083	1,389	70.24	16.54	6.36	3.01	3.85
6A	32,873	23,144	5,396	2,099	944	1,320	70.41	16.41	6.29	2.87	4.02
6B	31,134	22,530	4,974	1,783	780	1,067	72.36	15.98	5.73	2.50	3.43
7A	27,667	20,537	4,088	1,501	666	875	74.23	14.76	5.43	2.42	3.16
7B	24,791	18,854	3,655	1,167	514	601	76.05	14.74	4.72	2.07	2.42
8A	21,112	16,638	2,828	925	318	403	78.81	13.40	4.38	1.51	1.90
8B	19,545	16,620	1,983	491	183	268	85.03	10.14	2.52	.94	1.37
Total.....	568,612	382,406	97,512	39,391	19,297	30,006	67.25	17.15	6.93	3.39	5.28

The data for this table were computed from reports made to the Committee on School Inquiry, June, 1911.

If comparison is made grade by grade between the per cent. of all pupils within a grade absent each of the several periods, it will be observed that the per cent. of children absent ten days and less is the lowest in the 1A grade and the highest in the 8B, increasing from 40.02 per cent. in the 1A to 85.03 per cent. in the 8B. With each of the less favorable periods of absence, the reverse is true. Absence eleven to twenty days decreases from 20.25 per cent in the 1A to 10.14 per cent. in the 8B; twenty-one to thirty days from 11.65 per cent. to 2.52 per cent.; thirty-one to forty days from 7.41 per cent. to .94 per cent.; and absence forty-one days and above from 20.67 per cent. to 1.37 per cent. Hence, the largest amount of absence is in the 1A grade; this gradually decreases to the 8B, in which grade there is the least amount of absence.

The difference in the amount of absence in the several grades and the gradual decrease from the 1A to the 8B become clearer if the pupils on register June 30, 1911, are grouped according to (1) absence twenty days and less, and (2) absence twenty-one days and more. Table XIX gives the per cent. of the register of each grade in regular classes as of June 30, 1911, absent twenty days and less and absent twenty-one days and more:

Table XIX

Grades	Per Cent. of Total Register as of June 30, 1911, Absent Twenty Days and Less	Per Cent. of Total Register as of June 30, 1911, Absent Twenty-one Days and More
1A.....	60.27	39.73
1B.....	78.55	21.45
2A.....	82.23	17.77
2B.....	85.27	14.73
3A.....	86.38	13.62
3B.....	86.93	13.07
4A.....	86.56	13.44
4B.....	86.78	13.22
5A.....	86.10	13.90
5B.....	86.78	13.22
6A.....	86.82	13.18
6B.....	88.34	11.66
7A.....	88.99	11.01
7B.....	90.79	9.21
8A.....	92.21	7.79
8B.....	95.17	4.83
Total.....	84.40	15.60

The amount of absence in the two lowest grades, and especially in the 1A, is particularly large, because pupils in these grades are young; the amount of sickness among them is greater than among older children; they have not as yet acquired the school-going habit, and parents generally do not feel it necessary to keep such young children in

school regularly. From the 2A to the 6A grade, absence is checked to a greater or less extent by the enforcement of the Compulsory Education Law. The further decrease in the 6B and later grades is probably due to the withdrawal of larger numbers of pupils who were more or less irregular in attendance,<sup>1</sup> and to the more steady habits and fixed purposes of those remaining. But the amount of absence in all grades is large; whether it cannot be greatly reduced is a question worthy of earnest and immediate consideration by the school authorities.

## 2. Rate of Promotion in Each of the Several Periods of Absence

The effect of absence on the progress of children is shown by Table XX. This table gives by grades and for each period of absence the per cent. of the register as of June 30, 1911, promoted; also the per cent. not promoted:

Table XX

Grades	Per Cent. of Register as of June 30, 1911, Promoted					Per Cent. of Register as of June 30, 1911, Not Promoted				
	Absent 10 Days and Less	11 to 20	21 to 30	31 to 40	41 and Above	Absent 10 Days and Less	11 to 20	21 to 30	31 to 40	41 and Above
1A	89.47	85.75	79.02	71.01	40.56	10.53	14.25	20.98	28.99	59.44
1B	92.80	89.02	85.52	80.31	63.84	7.20	10.98	14.48	19.69	36.16
2A	92.19	88.94	84.78	78.97	67.56	7.81	11.06	15.22	21.03	32.44
2B	93.26	89.73	86.01	81.36	66.84	6.74	10.27	13.99	18.64	33.16
3A	92.77	88.27	83.31	80.60	63.24	7.23	11.73	16.69	19.40	36.76
3B	93.62	89.69	84.24	78.20	63.05	6.38	10.31	15.76	21.80	36.95
4A	93.27	88.19	84.32	75.12	58.98	6.73	11.81	15.68	24.88	41.02
4B	93.75	88.29	84.01	74.80	55.49	6.25	11.71	15.99	25.20	44.51
5A	93.00	87.37	80.45	71.34	52.85	7.00	12.63	19.55	28.66	47.15
5B	93.88	88.00	80.59	71.00	51.33	6.12	12.00	19.41	29.00	48.67
6A	93.60	86.12	79.60	68.96	49.62	6.40	13.88	20.40	31.04	50.38
6B	93.57	87.05	79.81	68.08	45.08	6.43	12.95	20.19	31.92	54.99
7A	92.30	84.15	75.15	68.62	40.69	7.70	15.85	24.85	31.35	59.31
7B	93.07	84.02	77.89	60.89	42.27	6.93	15.98	22.11	39.11	57.73
8A	92.65	85.15	77.51	61.95	40.45	7.35	14.85	22.49	38.05	59.55
8B	97.12	82.15	74.95	77.60	67.16	2.88	17.85	25.05	22.40	32.84
Total.....	93.16	87.60	82.15	74.54	52.82	6.84	12.40	17.85	25.46	47.18

The data for this table were computed from the reports to the Committee on School Inquiry, June, 1911.

When the several grades are considered together the highest rate of promotion at the end of the February-June term, 1911, was among children absent ten days and less, the rate of promotion being 93.16 per cent. The rate of promotion was lower for pupils absent eleven to twenty days than for pupils absent ten days and less by 5.56 per cent.; lower for pupils absent twenty-one days to thirty days by 11.01 per cent.; lower for pupils absent thirty-one to forty days by 18.62 per cent.; and lower for pupils absent forty-one days and above by 40.34 per cent.

The same relative effect of absence on promotion is to be observed

<sup>1</sup> See Table XXIV, p. 75; also Table XXXIX, p. 108.

in each of the grades. The promotions out of each hundred pupils on register ranged in the several grades from—

89 to 97 for pupils absent ten days and less,  
 82 to 90 " " " eleven to twenty days,  
 75 to 86 " " " twenty-one to thirty days,  
 60 to 81 " " " thirty-one to forty days,  
 40 to 67 " " " forty-one and above.

The highest rate of promotion at the end of the February-June term, 1911, in every grade, was, therefore, for pupils absent ten days and less; the rate decreased in every grade with each succeeding period of greater absence, and the lowest rate of promotion in every grade was for pupils absent forty-one days and above.

The difference in the effect of absence on the rate of promotion in the several grades becomes apparent if pupils are grouped according as they were absent twenty days and less, and twenty-one days and more, and the rate of promotion for the two groups is given by grades:

Table XXI

Grades	Rate of Promotion Among Pupils Absent 20 Days and Less	Rate of Promotion Among Pupils Absent 21 Days and More	Rate of Promotion Among Pupils Absent 20 Days and Less Above the Rate of Promotion Among Pupils Absent 21 Days and More
1A.....	88.22	57.52	30.70
1B.....	91.76	77.69	14.07
2A.....	91.42	78.10	13.32
2B.....	92.51	79.44	13.07
3A.....	91.88	76.58	15.30
3B.....	92.87	76.59	16.28
4A.....	92.29	74.89	17.40
4B.....	92.71	73.53	19.18
5A.....	91.89	70.07	21.82
5B.....	92.76	69.88	22.88
6A.....	92.18	68.15	24.03
6B.....	92.39	67.08	25.31
7A.....	90.95	63.81	27.14
7B.....	91.60	64.68	26.92
8A.....	91.56	65.43	26.13
8B.....	95.52	73.25	22.27
Total.....	92.03	70.57	21.46

The effect of absence on the rate of promotion is greatest, it appears, in the 1A grade, being more than twice as great as in the 1B. From the 1B on, the seriousness of absence becomes increasingly greater practically to the 8B. That is, in case a pupil has been absent twenty-one days and more, his chance of promotion decreases with each grade from the 1B to the 8B.

It, therefore, appears, as promotions are made at the end of the February-June term, 1911, with the exception of the 1A grade, absence affected more seriously the rate of promotion in the higher than in the lower grades, and that, in all grades, the rate of promotion varies inversely with the amount of absence.

### 3. Absence as a Factor in Non-Promotion and Congestion

In the group of pupils having the highest per cent. of promotion absence varied from zero to ten days.<sup>1</sup> Hence, so far as our data go, the effect of absence on promotion is least among pupils absent from zero to ten days, and any difference in the rate of promotion in groups absent a longer period may be attributed to the effect of the longer absence.<sup>2</sup> Hence, by making the rate of promotion among children absent from zero to ten days the norm, the effect of absence on promotion may be estimated within reasonable limits.

Table XXII gives the actual number of non-promotions among pupils absent eleven days and above, the number of non-promotions there would have been at the rate of non-promotion for pupils absent from zero to ten days, the decrease in number, and also the per cent. of decrease in the number of non-promotions at the rate of non-promotion for pupils absent from zero to ten days. (See page 69.)

There were, it will be observed, 38,194 non-promotions at the end of the February-June term, 1911, in all grades among pupils absent eleven days and above. Had the same rate of non-promotion prevailed for such pupils as among pupils absent from zero to ten days there would have been but 13,637 non-promotions, a decrease of 24,557, or 64.30 per cent. The largest numerical reduction would have been in the 1A, 5,785; the smallest in the 8B, 522. The lowest per cent. of decrease would have been in the 2A, 51.86 per cent.; the highest in the 8B, 86.14 per cent. Hence, from 51.86 per cent. to 86.14 per cent. of the non-promotions in the several grades and 64.30 per cent. of all non-promotions among pupils absent eleven days and above may be attributed to the effect of absence.

When judged solely in view of promotions as made at the end of the February-June term, 1911, absence appears to be a very large factor in increasing the number of non-promotions, and hence in increasing congestion. The effect of absence is, then, that tens of thousands of children are left back to go over the same work again, to congest the

<sup>1</sup> See Table XX, p. 66.

<sup>2</sup> In attributing differences in rate of promotion to absence, the assumption is, of course, that all other conditions were the same in the several groups of pupils. While this assumption is evidently not exact, the results based on it are significant. Only additional data not now available and further study can determine exactly the precise effect of absence among the other factors determining non-promotion. In any case, it is obvious that prolonged or frequent absence of children from school must affect their promotion unfavorably.

Table XXII

Non-Promotions Among Pupils Absent Eleven Days and Above.				
Grades	Actual Number of Non-Promotions	Number of Non-Promotions at Rate of Promotion for Pupils Absent Zero to Ten Days	Decrease in Number of Non-Promotions at Rate of Promotion for Pupils Absent Zero to Ten Days	Per Cent. of Decrease in Non-Promotions at Rate of Promotion for Pupils Absent Zero to Ten Days
1A.....	8,501	2,716	5,785	68.05
1B.....	3,571	1,547	2,024	56.68
2A.....	2,397	1,154	1,243	51.86
2B.....	2,180	987	1,193	54.72
3A.....	2,087	892	1,195	57.26
3B.....	2,050	814	1,236	60.29
4A.....	2,063	783	1,280	62.05
4B.....	2,167	741	1,426	65.81
5A.....	2,326	798	1,528	65.69
5B.....	2,150	656	1,494	69.49
6A.....	2,129	623	1,506	70.74
6B.....	1,839	553	1,286	69.93
7A.....	1,749	549	1,200	68.61
7B.....	1,390	411	979	70.43
8A.....	989	329	660	66.73
8B.....	606	84	522	86.14
Total.....	38,194	13,637	24,557	64.30

These data were computed from reports submitted to the Committee on School Inquiry, June, 1911.

already overcrowded lower grades, to increase the amount and degree of retardation, and to add to the cost of the elementary school.

In view of the effect of absence on the child's progress through school the first duty of teachers and principals should be to keep children regular in attendance; and the corresponding responsibility of the department of school attendance is, therefore, very great.

#### 4. Conclusions

The foregoing discussion may be thus summarized:

(1) There were 382,406 pupils, or 67.25 per cent. of the total register as of June 30, 1911, absent from zero to ten days during the February-June term, 1911; 97,512, or 17.15 per cent., absent eleven to twenty days; 39,391, or 6.93 per cent., absent twenty-one to thirty days; 19,297, or 3.39 per cent., absent thirty-one to forty days; and 30,006, or one pupil in each nineteen on register, absent forty-one days and above.

(2) The greatest amount of absence during the February-June term, 1911, was in the 1A grade; this gradually decreased to the 8B, in which grade there was the least absence.

(3) The amount of absence in all grades is large; whether it cannot be greatly reduced is a question worthy of immediate and earnest attention.

(4) With the exception of the 1A grade, absence affected more seriously the rate of promotion in the higher than in the lower grades; and, in all grades, the rate of promotion varies inversely with the amount of absence.

(5) Absence is a very large factor in increasing the number of non-promotions, and hence in increasing congestion.

(6) In view of the effect of absence on the child's progress through the school, the first duty of teachers and principals should be to keep children regular in attendance, and the corresponding responsibility of the department of school attendance is, therefore, very great.

#### IV. Promotion, Non-Promotion, and Over-Age

##### 1. Meaning and Significance of Over-Age

Investigations carried on within the last five years have established two facts: (1) That children in large numbers, either from inclination or from necessity, on becoming fourteen years of age drop out of school permanently; (2) that many of the children leaving the elementary school permanently have not advanced further in the course of study than the fifth or sixth year.

These facts have led to the question of the grade a child of a given age should have completed, providing he is to finish the entire elementary school course of study by a given age. Accordingly, certain age limits have been fixed for entering and for completing each of the grades of the elementary school. Children finishing a grade before the age limit fixed for completing the given grade are termed "under age." Children finishing a grade at the age limit fixed for completing the given grade are termed "normal age." Children finishing a grade at an older age than the age limit fixed for completing the given grade are termed "over-age"—that is, are behind the grade for their age.

Had children an indefinite length of time in which to secure an education, the fact that they are over-age would have no significance. But over-age has significance, because the majority of children have only a limited number of years in which to acquire an education; when these years are spent they must drop from school permanently. Hence, for large numbers of children to fall behind in the elementary school one or more years means, particularly if they have fallen behind because of slow progress after entrance, that they will drop out without completing one or more of the upper grades.

In determining the number of over-age pupils in a school system and the degree of over-age—that is, the length of time children are behind



their grade—much depends on the age-grade standards adopted and on the method employed in making the estimate.

(1) The ages of the children are taken at different times; they are taken at the beginning, the middle, or at the end of the school year.

(2) Different ages are fixed for entering and for completing each grade, and hence for completing the course. The City Superintendent of Schools regards a pupil of normal age who completes the grades of the first year by the time he is eight, and who completes the grades of the eighth year by the time he is fifteen;<sup>1</sup> while others regard the normal upper age limits for completing these grades as seven and fourteen.<sup>2</sup>

(3) Over-age is determined by the normal age of entrance to the grade; also by the normal age of completing the grade to which pupils are promoted at the end of the school year. It will be admitted that it is correct to determine the over-age, if any, of promoted pupils by the normal age of *entrance* to the grade to which they are advanced at the end of the school year. But it will not be admitted that it is correct to determine the over-age, if any, of pupils promoted at the end of the school year by the age fixed *for completing* the grade to which they are advanced: or that it is correct to determine the over-age of pupils not promoted at the end of the school year by the age fixed *for completing* the grade in which they are then registered. To estimate over-age in the last two ways is to give promoted and particularly non-promoted pupils the advantage of the entire normal period for doing the work of a grade, and hence to lessen by one school year or term the recorded over-age of children.

(4) Over-age is determined by the normal age *for completing* the grade in which pupils are registered *before promotion* at the end of the school year. This is the common way of estimating it, but estimates made in this way underrate somewhat the amount of over-age, because the estimate is made as if all pupils had completed the work of the grade, whereas some pupils have not completed it. Hence, to determine the amount of over-age, if any, by the age fixed *for completing* the grade in which children are registered *before promotion* at the end of the school year is practically to lessen the amount of over-age, if any, of all children not promoted by the length of the normal period for doing the work of a grade.

(5) Over-age is determined by the age fixed *for completing* the grade last finished *after promotion* at the end of the school year. When it is thus estimated, the amount of over-age, if any, of promoted pupils is determined by the age fixed for completing the grade from which they have just been advanced, but that of pupils not promoted is determined by the age fixed for completing the grade next lower than the one in which such pupils were registered during the school year and from which they were not advanced.

<sup>1</sup> Report of the City Superintendent of Schools for 1904, p. 47.

<sup>2</sup> Report of Committee on Uniform Records and Reports, Proceedings of N. E. A., 1911, pp. 288-291.

On the foregoing points there is at present no uniformity in practice. Those estimating over-age have not made clear the basis of the age-grade standards adopted or of the several steps in their method, and, as a rule, have not adhered uniformly to one age-grade standard or to one procedure.

It is impossible, with the time at our disposal, to consider the many problems involved in an accurate estimate of over-age. But the essential bases of such an estimate are:

(1) That the ages of the children be taken on the last day of the official school year or half year for which the estimate is made.

(2) That the normal age for completing the elementary school be fixed at fourteen to fourteen and a half, and that the normal period for doing the work of each grade be uniform for the several grades—i. e., one school year or one half year for each grade. Hence, the normal ages for entering and for completing each of the grades are:

	Normal Age of Entrance	Normal Age of Completion
First Grade.....	6 up to $6\frac{1}{2}$	7 up to $7\frac{1}{2}$
Second Grade.....	7 up to $7\frac{1}{2}$	8 up to $8\frac{1}{2}$
Third Grade.....	8 up to $8\frac{1}{2}$	9 up to $9\frac{1}{2}$
Fourth Grade.....	9 up to $9\frac{1}{2}$	10 up to $10\frac{1}{2}$
Fifth Grade.....	10 up to $10\frac{1}{2}$	11 up to $11\frac{1}{2}$
Sixth Grade.....	11 up to $11\frac{1}{2}$	12 up to $12\frac{1}{2}$
Seventh Grade.....	12 up to $12\frac{1}{2}$	13 up to $13\frac{1}{2}$
Eighth Grade.....	13 up to $13\frac{1}{2}$	14 up to $14\frac{1}{2}$

(3) That the over-age, if any, be determined by the age fixed for completing the grade last finished after promotion at the end of the school year, or half year. Hence, the over-age, if any, of promoted pupils is determined by the age fixed for completing the grade from which they have just been promoted, whereas the over-age of pupils not promoted is determined by the age fixed for completing the grade next lower than the grade from which they have just failed to be promoted.

In this report it was impossible, with the data at hand, to do otherwise than to adopt the age-grade standards fixed by the City Superintendent of Schools,<sup>1</sup> and to determine over-age without regard to whether pupils were advanced or not advanced by the age fixed for being in the grade in which pupils were registered before promotion at the end of the term, the method of estimating over-age most commonly used. The ages of children are as of June 30, 1911.<sup>2</sup>

<sup>1</sup> Annual Report of the City Superintendent of Schools for 1904, p. 47.

<sup>2</sup> While the age-grade standards and the ages of the children are the same in both estimates, our estimate of over-age at the end of the February-June term, 1911,

2. Number of Over-Age Pupils in Regular Classes<sup>1</sup>

The number of over-age pupils in the regular classes of elementary schools of the city at the end of the February-June term, 1911, is shown by Table XXIII. This table gives by grades the number of pupils on register June 30, 1911, before promotion, under normal age, of normal age, and over normal age; also the per cent. of the total register of each grade under normal age, of normal age, and over normal age.

Table XXIII

REGISTER IN REGULAR CLASSES AS OF JUNE 30, 1911, BEFORE PROMOTION						
Grades	Number Under Normal Age	Number Normal Age	Number Over Normal Age	Per Cent. of Total Register		
				Below Normal Age	Of Normal Age	Over Normal Age
1A.....	414	36,882	5,716	.96	85.75	13.29
1B.....	516	40,114	9,202	1.03	80.50	18.47
2A.....	828	27,967	10,812	2.09	70.61	27.30
2B.....	835	31,361	12,412	1.87	70.31	27.82
3A.....	1,219	24,339	14,622	3.03	60.57	36.40
3B.....	885	25,839	16,187	2.06	60.22	37.72
4A.....	1,264	19,253	18,056	3.28	49.91	46.81
4B.....	1,029	20,652	18,228	2.58	51.74	45.68
5A.....	1,195	16,981	18,647	3.24	46.12	50.64
5B.....	1,019	17,380	17,636	2.83	48.23	48.94
6A.....	1,352	14,169	17,352	4.11	43.11	52.78
6B.....	1,202	14,515	15,417	3.86	46.62	49.52
7A.....	1,460	12,393	13,814	5.28	44.79	49.93
7B.....	1,168	12,658	10,965	4.71	51.06	44.23
8A.....	1,504	10,660	8,948	7.12	50.49	42.39
8B.....	1,461	10,765	7,319	7.48	55.07	37.45
Total.....	17,351	335,928	215,333	3.05	59.08	37.87

The data for this table were computed from the reports to the Committee on School Inquiry, June, 1911.

differs radically from that of the City Superintendent of Schools for the same term. (See Table XII, p. 31, for his estimate.) Our estimate is much higher than his. Even our estimate is somewhat too low, because the over-age of pupils not promoted is determined by the ages fixed for being in the grade in which such pupils were registered rather than by the ages fixed for completing the grade last finished. The estimate of the City Superintendent of Schools for promoted pupils is based on the ages fixed for being in the grades of the several years to which such children have just been advanced, and, for non-promoted pupils, on the ages fixed for being in the grades of the several years in which such pupils were registered during the term, but from which they failed to be promoted. In a word, the over-age, if any, of all children is judged by him as if they had completed the grade which they have just entered. (Non-promoted pupils have, of course, been in the grade for the term, but for practical purposes are just entering it.) To judge over-age by the method of the City Superintendent is to lessen the recorded number of pupils over-age, and to reduce the length of time pupils are over-age by from a half to an entire school year; to estimate over-age in this way is clearly wrong.

<sup>1</sup>We are concerned here with over-age in regular classes only. We are not concerned with over-age among the 31,430 pupils in special classes at the end of the February-June term, 1911. See Annual Report of the City Superintendent of Schools for 1911, p. 67.

Of the 568,612 pupils on register June 30, 1911, in regular classes, 17,351, or 3.05 per cent., were under normal—ahead of their grade; 335,928, or 59.08 per cent., were normal—up to grade; and 215,333, or 37.87 per cent., were over normal—behind their grade. The smallest number of over-age children was in the 1A grade, 5,716; the number is largest in the 5A, 18,647; while from the 5A the number gradually decreases to 7,319 in the 8B. Correspondingly, the lowest per cent. of over-age is in the 1A, 13.29 per cent.; and the highest 52.78 per cent., in the 6B; then there is a gradual decrease to 37.45 per cent. in the 8B grade.

Fig. 8

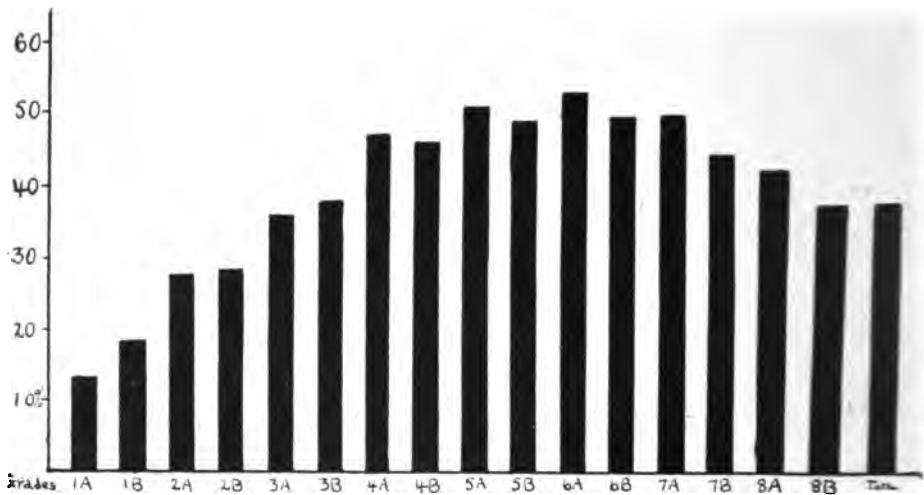


Fig. 8. Black indicates the per cent. of pupils in each grade over-age. (Compare with estimate of City Superintendent of Schools, Fig. 6, p. 32.)

### 3. The Degree of Over-Age

The fact that there were at the end of the February-June term 1911, in regular classes 215,333 over-age pupils is in itself significant, but the full significance of this fact becomes apparent only in view of the length of the period these pupils are behind their grades. Table XXIV gives by grades the number of pupils over-age under one year, between one and two years, between two and three years, and three years and more; also the per cent. of the total number of over-age pupils in each grade under one year over-age, between one and two years, etc.

Of the 215,333 over-age pupils, 120,618, or 56.01 per cent., are less than one year behind their grade, 62,247, or 28.91 per cent., between one and two years; 22,547, or 10.47 per cent., between two and three years; and 9,921, or 4.61 per cent., three years and more.

Table XXIV

Grades	Total Number Over-Age	Number Over-Age				Per Cent. of Total Number Over-Age			
		Under 1 Year	Between 1 and 2 Years	Between 2 and 3 Years	3 Years and More	Under 1 Year	Between 1 and 2 Years	Between 2 and 3 Years	3 Years and More
1A	5,716	3,942	1,224	305	245	68.96	21.41	5.34	4.29
1B	9,202	6,333	1,892	614	363	68.82	20.56	6.67	3.95
2A	10,812	6,999	2,407	879	527	64.73	22.26	8.13	4.88
2B	12,412	7,641	3,003	1,124	644	61.56	24.19	9.06	5.19
3A	14,622	8,257	4,034	1,402	929	56.47	27.59	9.59	6.35
3B	16,187	8,753	4,405	1,814	1,215	54.07	27.21	11.21	7.51
4A	18,066	9,629	4,894	2,234	1,299	53.33	27.10	12.37	7.20
4B	18,228	9,148	5,300	2,451	1,329	50.19	29.07	13.45	7.29
5A	18,647	8,855	5,910	2,731	1,151	47.49	31.69	14.65	6.17
5B	17,636	8,520	5,748	2,416	952	48.31	32.59	13.70	5.40
6A	17,352	8,785	5,934	2,099	534	50.63	34.20	12.09	3.08
6B	15,417	8,393	5,089	1,647	288	54.44	33.01	10.68	1.87
7A	13,814	8,025	4,440	1,182	167	58.09	32.14	8.56	1.21
7B	10,965	6,788	3,336	719	122	61.91	30.42	6.66	1.11
8A	8,948	5,805	2,565	491	87	64.87	28.67	5.49	.97
8B	7,319	4,745	2,066	439	69	64.83	28.23	6.00	.94
Total . . . .	215,333	120,618	62,247	22,547	9,921	56.01	28.91	10.47	4.61

The data for this table were computed from the reports to the Committee on School Inquiry, June, 1911.

The largest number of pupils between one and two years over-age is in the 6A grade, 5,934; the number of such pupils decreases with each succeeding grade to 2,066, in the 8B. The largest number of pupils between two and three years over-age is in the 5A, 2,731; the number then falls to 439, in the 8B. The largest number of pupils three years and more over-age is in the 4B grade, 1,329; the number declines with each succeeding grade until there are but sixty-nine such pupils in the 8B grade. It therefore appears that pupils between one and two years over-age drop from school in increasing numbers after the 6B grade; that pupils between two and three years over-age leave after the 5A; and that pupils three and more years over-age find it increasingly difficult to remain in school after the 4B.

Of the total number of over-age pupils in each grade, the per cent. under one year over-age is the highest in the 1A, being 68.96 per cent.; this falls to 47.49 per cent. in the 5A, and then rises to 64.87 per cent. in the 8A. The per cent. between one and two years over-age rises gradually from 20.56 per cent. in the 1B to 34.20 per cent. in the 6A, and then falls to 28.23 per cent. in the 8B. The per cent. between two and three years over-age is the lowest in the 1A, 5.34 per cent.; this rises to 14.65 per cent. in the 5A; and falls to 5.49 per cent. in the 8A. The per cent. three and more years over-age rises from 3.95 per cent. in the 1B to 7.51 per cent. in the 3B, then gradually diminishes to .94 of 1 per cent. in the 8B. Judged by the length of the period pupils are over normal, over-age is, therefore, the least serious in the 1A grade; grows increasingly serious to the 5A-5B grades; and thereafter

gradually declines in seriousness to the 8B, but never becomes less serious than in the 1A grade.

The full significance of 215,333 pupils being over-age lies, therefore, in the fact that, of these 215,333 pupils, 120,618 are behind their grade less than one year; 62,247 between one and two years; 22,547 between two and three years; and 9,921 three years and more, and also in the fact that the tendency among these children—especially among those behind their grade because of failure to be advanced regularly, to fail to complete the work of the elementary school keeps pace with the extent to which they are over-age.

#### 4. Rate of Promotion for Over-Age Pupils

On the assumption that school conditions were the same for both classes of children, a materially lower rate of promotion at the end of the February-June term, 1911, for over-age children than for children of normal age can be attributed to lack of capacity among over-age children, or to home conditions which prevent them from doing their best work, or to both.

Table XXV gives by grades the rate of promotion at the end of the February-June term, 1911, for pupils under normal age, for pupils of normal age, and for over-age pupils:<sup>1</sup>

Table XXV

Rate of Promotion.				
Grades	For Pupils Under Normal Age	For Pupils of Normal Age	For Over-Age Pupils	Rate of Promo- tion for Pupils of Normal Age Over Rate of Promo- tion for Over-Age Pupils
1A.....	53.62	75.69	79.76	-4.07
1B.....	76.36	89.72	85.14	4.58
2A.....	88.04	90.51	85.34	5.17
2B.....	91.02	92.40	85.95	6.45
3A.....	89.42	92.28	85.68	6.60
3B.....	92.09	93.74	85.87	7.87
4A.....	94.62	93.70	85.63	8.07
4B.....	92.91	94.19	85.47	8.72
5A.....	94.91	94.00	83.79	10.21
5B.....	94.70	94.40	84.86	9.54
6A.....	95.56	94.16	84.30	9.86
6B.....	95.76	94.23	84.44	9.79
7A.....	93.56	92.73	83.10	9.63
7B.....	95.12	92.40	84.70	7.70
8A.....	93.68	92.49	85.28	7.21
8B.....	96.92	96.04	91.61	4.43
Total.....	92.24	90.84	85.03	5.81

Data for this table were computed from the reports to the Committee on School Inquiry, June, 1911.

<sup>1</sup> With the data at hand it was impossible to distinguish between pupils over-age because of late entrance, and pupils over-age because of slow progress in school.

The rate of promotion in the 1A grade was lower for children under normal and of normal age than for over-age pupils. The higher rate of promotion for over-age 1A pupils might be due to the fact that, though the native ability of over-age children is less than that of children under normal age and of normal age, the greater maturity of over-age children enables them to do better the work of the 1A. Should investigation prove this to be true, there would be ample grounds for modifying, in favor of children under normal and of normal age, the work of the 1A grade.

In each of the grades 1A-4B, inclusive, with the exception of the 4A, the rate of promotion was higher for normal pupils than for pupils under normal. From the 5B on, however, the higher rate in each grade was for children under normal age. It therefore appears that children under normal age, although they may have greater native ability, do not do as well in the lower grades, as a rule (probably because of immaturity), as pupils of normal age, but that younger pupils (owing doubtless to superior capacity) do better than pupils of normal age in each of the grades from the 5A to the 8B.

With the exception of the 1A grade, the rate of promotion was higher in each grade from 4.43 per cent. to 10.21 per cent. for pupils of normal age than for over-age pupils. By reason of this lower rate of promotion, it would seem that over-age pupils have decidedly less capacity for regular school work than pupils of normal age, or enjoy decidedly less favorable home surroundings, or have both less capacity and less favorable home surroundings. Investigation should be made to determine whether this difference in rate of promotion for normal pupils and for over-age pupils is due to home surroundings or to difference in capacity for regular school work; also to what extent over-age is due to late entrance and to what extent it is due to failure to be regularly promoted.

There is no reason to suppose that the lower rate of promotion prevailing among over-age children was exceptional for the February-June term, 1911. Hence, it would appear that the factors, whether late entrance, lack of capacity, or conditions in the home, or in the school, which cause the child to become over-age continue to operate, with the result that over-age children tend to fall farther and farther behind. The cumulative effect of over-age is shown by the following table. (See page 78.)

Whether the decidedly lower rate of promotion, with the exception of the 1A grade, for over-age pupils, and the decided decrease in the rate of promotion with each increase in the length of the period of over-age, are due to lack of capacity, to home conditions, or to conditions in the school, or to all these factors together, this lower rate is evidence of the wisdom of the special classes ("E" classes) in which special attention and direction are given to over-age pupils; also evidence of the need of increased provisions for over-age children. The 9,921 pupils on register June 30, 1911, three and more years over-age, the 22,547 between two and three years behind their grades, and the 62,247

Number Promoted June 30, 1911, Out of Each One Hundred Pupils on Register.

Grades	Of Normal Age	Under One Year Over Normal	Between 1 and 2 Years Over Normal	Between 2 and 3 Years Over Normal	3 Years and More Over Normal
1A.....	76	79	81	78	84
1B.....	90	85	85	85	87
2A.....	91	86	84	83	84
2B.....	92	87	85	84	82
3A.....	92	87	84	82	81
3B.....	94	88	85	83	82
4A.....	94	88	85	81	79
4B.....	94	88	84	81	79
5A.....	94	88	82	79	74
5B.....	94	88	84	79	72
6A.....	94	88	82	78	71
6B.....	94	88	82	76	79
7A.....	93	85	81	78	74
7B.....	92	86	83	81	84
8A.....	92	87	83	78	79
8B.....	96	93	90	86	88
Total.....	91	87	83	80	79

between one and two years over-age would certainly profit from special attention. It does not follow, however, that these over-age pupils should all be put in "E" classes which add approximately 50 per cent. to the cost of educating an elementary school pupil. An investigation should be made in each case to determine to what extent over-age is due to late entrance and to what extent it is due to slow progress, that is, to retardation. For it is obvious that the treatment of a group of pupils over-age by reason of late entrance and who have received promotion regularly should be different from the treatment of a group of pupils over-age because of failure to be regularly promoted.

Further, earnest consideration should be given to the question of whether or not large numbers of over-age pupils (over-age merely because of late entrance) and of retarded pupils (over-age because of failure to be promoted) could not be cared for quite as well through segregating them into classes of standard size and adapting the course of study to their abilities and needs<sup>1</sup>, hence without increased expense, as through segregating them into "E" classes as now organized and conducted and increasing the cost by 50 per cent.

##### 5. Over-Age as a Factor in Non-Promotion and Congestion

When over-age is taken as the expression of certain persistent conditions, the extent to which it is a factor in increasing the number of non-promotions, and hence in increasing congestion, is shown by Table

<sup>1</sup> See this report, pp. 49-51.



**XXVI.** This table gives the actual number of over-age pupils non-promoted, the number that would have been non-promoted at the rate of non-promotion for pupils of normal age, the decrease and also the per cent. of decrease in the number of non-promotions at the rate of non-promotion for pupils of normal age.

Table XXVI

## Non-Promotions Among Over-Age Pupils.

Grades	Actual Number of Non-Promotions	Number of Non-Promotions at Rate of Non-Promotion for Pupils of Normal Age	Decrease in Number of Non-Promotions at Rate of Non-Promotion for Pupils of Normal Age	Per Cent. of Decrease in Non-Promotions at Rate of Non-Promotion for Pupils of Normal Age
1A.....	1,157	1,390	-233	-20.14
1B.....	1,367	946	421	30.80
2A.....	1,585	1,026	559	35.27
2B.....	1,744	943	801	45.93
3A.....	2,094	1,129	965	46.08
3B.....	2,287	1,013	1,274	55.71
4A.....	2,595	1,138	1,457	56.15
4B.....	2,648	1,059	1,589	60.01
5A.....	3,022	1,118	1,904	63.00
5B.....	2,670	988	1,682	63.00
6A.....	2,724	1,013	1,711	62.81
6B.....	2,399	890	1,509	62.90
7A.....	2,335	1,004	1,331	57.00
7B.....	1,678	833	845	50.36
8A.....	1,317	672	645	48.97
8B.....	614	290	324	52.77
Total.....	32,236	15,452	16,784	52.07

The data for this table were computed from the reports made to the Committee on School Inquiry June, 1911.

Had the rate of non-promotion been the same for over-age pupils as for normal pupils, there would have been a reduction in each grade, with the exception of the 1A, in the number of over-age pupils not promoted. The reduction would have varied from 30.80 per cent. in the 1B to 63 per cent. in the 5B. While there would have been more non-promotions in the 1A by 233, there would have been a total net reduction in non-promotions of 16,784, or 52.07 per cent.—equivalent to one less non-promotion to each thirteen over-age pupils on register. Over-age—as the expression of persistent conditions—is, therefore, an important factor in increasing the number of non-promotions, and hence in increasing the amount of congestion.

## 6. Probable Additional Cost to Provide "E" Classes for Pupils Two and More Years Over-Age

There were, at the end of the February-June term, 1911, 32,468 pupils, on register in regular classes, two and more years behind their grade. To provide "E" classes that these pupils, to say nothing of the 62,247 between one and two years over-age, might receive the special attention needed would require both additional school rooms and additional teachers. On the assumption that these over-age pupils were in classes of forty-five pupils each, and that none of them would be cared for in the "E" classes already organized, and allowing for a register of thirty pupils per "E" class, there would be required 361 additional school rooms and 361 additional teachers. To provide these would involve an investment of approximately \$3,610,000 in new buildings and an annual expense of probably \$70,000 for upkeep and maintenance; also an annual expenditure of \$259,920 for teachers' salaries.<sup>1</sup>

It is probable that certain school rooms not now in use might be used in caring for some of these over-age pupils. To the extent to which this could be done the only added expense in providing "E" classes would be for teachers. Should the Board of Education request funds for buildings and teachers in order to establish "E" classes, an investigation should be made of the number of rooms not now in use that might be used for such classes, also serious consideration should be given to the question of whether or not large numbers of over-age children cannot be provided for better through segregating them into classes of standard size (thus causing no increase in cost) and through adapting the course of study to their abilities and needs than through segregating them into "E" classes as now organized and conducted and increasing the cost.

## 7. Conclusions

The conclusions from the foregoing discussion may be thus summarized:

(1) There were 215,333 over-age pupils in regular classes at the end of the February-June term, 1911, or 37.87 per cent. of all pupils on register in regular classes were behind the grade for their age.

(2) Of the 215,333 over-age pupils, 120,618, or 56.01 per cent., were less than one year over-age; 62,247, or 28.91 per cent., between one and two years; 22,547, or 10.47 per cent., between two and three years; and 9,921, or 4.61 per cent., three years and more.

(3) Pupils between one and two years over-age drop from school in increasing numbers after the 6B grade; those between two and three years over-age begin to leave after the 5B, and those three years and more over-age find it increasingly difficult to remain in school after the 4B grade.

<sup>1</sup> For the basis of these estimates, see this report, note 3, p. 61.

(4) Judged by the length of the period pupils are over normal, over-age is the least serious in the 1A grade; grows increasingly serious to the 5A-5B grades; and thereafter gradually declines in seriousness to the 8B, but never becomes less serious than in the 1A grade.

(5) In each of the grades 1A-4B, inclusive, with the exception of the 4A, the rate of promotion was higher for normal pupils than for pupils under normal age. From the 5B on, however, the higher rate in each grade was for pupils under normal age.

(6) With the exception of the 1A grade, the rate of promotion was higher in each grade from 4.43 per cent. to 10.21 per cent. for pupils of normal age than for over-age pupils.

(7) When over-age is viewed as the expression of the lack of ability among children, or of the failure of the school to adapt its requirements to the abilities of pupils, or of unfavorable home conditions, or of these and other factors together, over-age is cumulative; that is, over-age children tend to fall farther and farther behind.

(8) Over-age is a decided factor in increasing the number of non-promotions, and hence increasing the amount of congestion.

(9) In view of conditions as they existed in regular classes at the end of the February-June term, 1911, and on the assumption that no more over-age pupils can be cared for in the "E" classes already organized, and that there are no rooms not now in use that could be used for this purpose, to provide "E" classes for pupils two and more years behind their grade only would require, for additional school rooms and for additional teachers, an investment of approximately \$3,610,000 in new buildings and an annual expenditure of probably \$70,000 for upkeep and maintenance; also an annual minimum expenditure of \$259,920 for teachers' salaries.

(10) We recommend:

- (a) That classes in which special attention and direction are given to over-age pupils be provided at least for all pupils two and more years behind their grade.
- (b) That an investigation be made of the pupils now in "E" classes to determine to what extent the over-age of the pupils in these classes is due to late entrance and to what extent it is due to slow progress or retardation; and to determine to what extent the pupils in the classes are classified and the instruction given is determined according as they are over-age because of late entrance or slow progress.
- (c) That before additional "E" classes are organized serious consideration be given to the question of whether or not large numbers of over-age children cannot be provided for better through segregating them into classes of standard size (hence causing no increase in cost) and through adapting the course of study to their abilities and needs than through seg-

- regating them into "E" classes as now organized and conducted and increasing the cost.
- (d) That data be collected and so reported that it will not only be possible to determine the exact amount of over-age, but to determine to what extent over-age is due to late entrance and to what extent it is due to slow progress or retardation.

## V. Promotion, Non-Promotion and Inability to Use the English Language

There are thousands of pupils enrolled in the elementary schools of the City of New York who are foreign born, or who are of foreign-born parentage. To a large proportion of these children the English language is essentially a foreign language. Classes have been organized—"C" classes—to give special help to such children, to the end that they may more quickly acquire a working knowledge of the English language and be prepared, at an early date, to take their place in regular classes. Despite the help given by "C" classes,<sup>1</sup> there are pupils in regular classes who, in the opinion of the teachers, have such difficulty in understanding and in using the English language that this interferes with their progress through the school.

### I. Number of Pupils in Regular Classes Unable to Use the English Language

The number of pupils in regular classes as of June 30, 1911, whose inability to use the English language was, in the opinion of teachers, interfering with their school progress is shown by Table XXVII. This table gives by grades the number of pupils unable to use the English language, the per cent. of the register of each grade unable to use the English language, also the per cent. of all such pupils in each grade.

It will be observed that there were 8,739 pupils, or 1.54 per cent. of the total register in regular classes, whose inability to use the English language was such, in the opinion of the teachers, as to interfere with their school work. Of these 8,739 pupils unable to use the English language, over one-half—55.87 per cent.—were in the 1A and 1B grades (3,648, or 41.74 per cent., in the 1A and 1,235, or 14.13 per cent. in the 1B); in the 1A-3B grades together there were 6,986, or 79.94 per cent. The remaining 1,753, or 20.06 per cent., were in the grades 4A-8B, ranging from 354, or 4.05 per cent., in the 4A to eleven, or .13 of 1 per cent., in the 8B grade. It will be observed that the per cent. of the total register unable to use the English language is the highest in the 1A grade, being 8.48 per cent., and that the per cent. decreases from 2.48 per cent. in the 1B to .06 of 1 per cent. in the 8B.

<sup>1</sup> 2,689 pupils were on register in "C" classes June 30, 1911. Annual Report of the City Superintendent of Schools for 1911, p. 67.

Table XXVII

Grades	Total Register in Regular Classes as of June 30, 1911	Number of Pupils Unable To Use the English Language	Per Cent. of the Register of Each Grade Unable to Use the English Language	Per Cent. of All Pupils Unable to Use the English Language in Each Grade	Cumulative Per Cent.
1A.....	43,012	3,648	8.48	41.74	41.74
1B.....	49,832	1,235	2.48	14.13	55.87
2A.....	39,607	649	1.64	7.43	63.30
2B.....	44,608	556	1.25	6.36	69.66
3A.....	40,180	475	1.18	5.44	75.10
3B.....	42,911	423	.99	4.84	79.94
4A.....	38,573	354	.92	4.05	83.99
4B.....	39,909	404	1.01	4.62	88.61
5A.....	36,823	388	1.05	4.44	93.05
5B.....	36,035	232	.64	2.65	95.70
6A.....	32,873	165	.50	1.89	97.59
6B.....	31,134	46	.15	.53	98.12
7A.....	27,667	48	.17	.55	98.67
7B.....	24,791	85	.34	.97	99.64
8A.....	21,112	20	.09	.23	99.87
8B.....	19,545	11	.06	.13	100.00
Total.....	568,612	8,739	1.54	.....	.....

Data for this table were computed from the reports made to the Committee on School Inquiry, June, 1911.

## 2. Effect of Inability to Use the English Language on Rate of Promotion

The number of pupils in each grade unable to use the English language is, therefore, relatively small. Hence, whatever the rate of promotion for such pupils, this would affect but slightly the rate of promotion for the grade as a whole. Just what the effect of the presence of such pupils in regular classes was on the rate of promotion for the grade as a whole at the end of the February-June term, 1911, is shown by Table XXVIII. This table gives by grades the rate of promotion at the end of the February-June term, 1911, for pupils able to use the English language; the rate of promotion in regular classes (includes both pupils able and pupils unable to use the English language); and the difference in the rate of promotion in regular classes due to the presence of pupils unable to use the English language. (See page 84.)

Had there been no pupils in regular classes unable to use the English language the rate of promotion at the end of the February-June term, 1911, would have been somewhat higher in every grade. It would have been higher in the 1A by 1.54 per cent.; in the 1B by .42 of 1 per cent.; and higher in the remaining grades by from .03 of 1 per cent. to .20 of 1 per cent. Such differences—even that in the 1A grade—are very small. Hence, the presence of pupils in regular classes unable to

Table XXVIII

Grades	Rate of Promotion for Pupils Able to Use the English Language	Rate of Promotion in Regular Classes— Includes Both Pupils Able and Unable To Use the English Language	Difference in Rate of Promotion in Regular Classes Due to the Presence of Pupils Unable to Use the English Language
1A.....	77.56	76.02	1.54
1B.....	89.16	88.74	.42
2A.....	89.24	89.04	.20
2B.....	90.76	90.58	.18
3A.....	89.92	89.79	.13
3B.....	90.85	90.74	.11
4A.....	90.07	89.95	.12
4B.....	90.30	90.18	.12
5A.....	88.97	88.86	.11
5B.....	89.77	89.74	.03
6A.....	89.08	89.02	.06
6B.....	89.50	89.44	.06
7A.....	88.02	87.96	.06
7B.....	89.20	89.12	.08
8A.....	89.56	89.52	.04
8B.....	94.48	94.45	.03
Total.....	88.99	88.68	.31

Data for this table were computed from the reports made to the Committee on School Inquiry, June, 1911.

use the English language had no material effect on the rate of promotion at the end of the February-June term, 1911, for the grade as a whole.

### 3. Rate of Promotion for Pupils Able and for Pupils Unable to Use the English Language

Nevertheless, inability to use the English language materially affects the school progress of those children who are unable to use the English language. This will be seen, if the rate of promotion for pupils able to use the English language is compared with the rate of promotion for pupils unable to use it.

Table XXIX gives by grades the rate of promotion at the end of the February-June term, 1911, for pupils able to use the English language; the rate of promotion for pupils unable to use the English language; also the difference in the rate of promotion in favor of pupils able to use the English language.

The rate of promotion at the end of the February-June term, 1911, for pupils able to use the English language was higher, it will be observed, in every grade, from 4.49 per cent. to 58.12 per cent., than for pupils unable to use the English language. The greatest difference in the rate of promotion for these two classes of children was in certain of

Table XXIX

Grades	Rate of Promotion for Pupils Able to Use the English Language	Rate of Promotion for Pupils Unable to Use the English Language	Difference in Rate of Promotion in Favor of Pupils Able to Use the English Language
1A.....	77.56	59.10	18.46
1B.....	89.16	72.06	17.10
2A.....	89.24	77.81	11.43
2B.....	90.76	76.62	14.14
3A.....	89.92	79.16	10.76
3B.....	90.85	79.43	11.42
4A.....	90.07	76.84	13.23
4B.....	90.30	78.22	12.08
5A.....	88.97	78.35	10.62
5B.....	89.77	84.48	5.29
6A.....	89.08	76.36	12.72
6B.....	89.50	52.17	37.33
7A.....	88.02	54.17	33.85
7B.....	89.20	84.71	4.49
8A.....	89.56	55.00	34.56
8B.....	94.48	36.36	58.12
Total.....	88.99	69.05	19.94

The data for this table were computed from the reports made to the Committee on School Inquiry, June, 1911.

the higher grades. By reason of the number of pupils affected, the smaller difference in the lower grades is, however, more significant. When measured by the difference in the rate of promotion, inability to use the English language seriously interferes, therefore, in regular classes, with the child's chances of promotion, lessening his chances from 4.49 per cent. to 58.12 per cent.

The decidedly lower rate of promotion for pupils unable to use the English language is evidence of the wisdom of special classes ("C" classes) for the instruction of such children; and the number of such children at the end of the February-June term in the regular classes, particularly of the 1A-3B grades—6,986—indicates that the number of "C" classes should be greatly increased. It also emphasizes the necessity of providing a flexible course of study so that, where there is need, additional time may be devoted in regular classes to giving children a working knowledge of the English language.

#### 4. Probable Additional Cost to Provide "C" Classes for Pupils Unable to Use the English Language

There were at the end of the February-June term, 1911, 3,648 pupils in regular classes of the 1A grade unable to use the English language. To provide "C" classes that these pupils, to say nothing of the 5,091 in the other grades, might receive the special attention they need would require both additional school rooms and additional teachers. On the

assumption that these 1A pupils were in classes of forty-five pupils each, and allowing thirty pupils per "C" class, there would be required, providing there are no rooms not now in use that could be used for this purpose, forty additional school rooms and forty additional teachers. To provide these would involve an investment of approximately \$400,000 in new buildings, and an annual expenditure of probably \$10,000 for upkeep and maintenance, and an annual minimum of \$56,800 for teachers' salaries.<sup>1</sup>

### 5. Inability to Use the English Language as a Factor in Non-Promotion and in Congestion

The actual effect on the number of non-promotions of the lower rate of promotion for pupils unable to use the English language is shown by Table XXX. This table gives by grades the number of non-promotions among pupils unable to use the English language, the number of non-promotions there would have been among such pupils at the rate of non-promotion for pupils able to use the English language, also the decrease and the per cent. of decrease in the number of non-promotions among such pupils at the rate of non-promotion for pupils able to use the English language:

Table XXX

Non-Promotion Among Pupils Unable to Use the English Language.				
Grades	Actual Number of Non-Promotions	Number of Non-Promotions at Rate of Non-Promotion for Pupils Able to Use the English Language	Decrease in Number of Non-Promotions at Rate of Promotion for Pupils Able to Use the English Language	Per Cent. of Decrease in Non-Promotion at Rate of Non-Promotion for Pupils Able to Use the English Language
1A.....	1,481	819	662	44.70
1B.....	345	134	211	61.16
2A.....	144	70	74	51.39
2B.....	130	51	79	60.77
3A.....	99	48	51	51.52
3B.....	87	39	48	55.17
4A.....	82	35	47	57.32
4B.....	88	39	49	55.68
5A.....	84	43	41	48.81
5B.....	36	24	12	33.33
6A.....	39	18	21	53.85
6B.....	22	5	17	77.27
7A.....	22	6	16	72.73
7B.....	30	9	21	70.00
8A.....	9	2	7	77.78
8B.....	7	1	6	85.71
Total.....	2,705	1,343	1,362	50.35

The data for this table were computed from the reports made to the Committee on School Inquiry June, 1911.

<sup>1</sup> For the basis of these estimates, see this report, note 3, p. 61.



Had the rate of non-promotion been the same as for pupils able to use the English language there would have been, among pupils unable to use the English language, a decrease in every grade in the number of non-promotions. The decrease would have varied from six in the 8B to 662 in the 1A, and the per cent. of decrease would have ranged from 33.33 per cent. to 85.71 per cent.; while, in all the grades together, there would have been 1,362 fewer non-promotions, or a decrease of 50.35 per cent.—the equivalent of one less non-promotion to each six pupils on register unable to use the English language.

When viewed in relation to the number of pupils involved, inability to use the English language is, therefore, a decided factor in increasing the number of non-promotions, but, because of the relatively small number of such children, it contributes very slightly in the lower and probably not at all in the upper grades to congestion.

## 6. Conclusions

The foregoing discussion is summarized in the following conclusions:

(1) There were in regular classes at the end of the February-June term, 1911, 8,739 pupils whose inability to use the English language was such, in the opinion of teachers, as to interfere with their school work. Over one-half, 55.87 per cent., were in the 1A and 1B grades; 3,648, or 41.74 per cent., in the 1A and 1,235, or 14.13 per cent., in the 1B. In the 1A-3B grades together there were 6,986, or 79.94 per cent. The remaining 1,753, or 20.06 per cent., were in the grades 4A-8B, ranging from 354, or 4.05 per cent., in the 4A to eleven, or .13 of 1 per cent., in the 8B.

(2) The presence of pupils in the regular classes of a grade unable to use the English language had no material effect, at the end of the February-June term, 1911, on the rate of promotion for the grade as a whole.

(3) But the rate of promotion for pupils able to use the English language was higher in each of the grades, from 4.49 per cent. to 58.12 per cent., than for pupils unable to use the English language.

(4) In view of the number of pupils in regular classes at the end of the February-June term, 1911, unable to use the English language, to provide "C" classes for such pupils in the 1A grade only would require, providing there are no rooms not now in use that could be used for this purpose, an investment of approximately \$400,000 in new buildings, an annual expenditure of probably \$10,000 for upkeep and maintenance, and an annual minimum of \$56,800 for teachers' salaries.

(5) When viewed in relation to the number of pupils involved, inability to use the English language is a decided factor in increasing the number of non-promotions, but, because of the relatively small number

of such children, it contributes to congestion only slightly in the lower and probably not at all in the upper grades.

(6) Although the presence of pupils in regular classes unable to use the English language, because of the relatively small number of such pupils, does not affect the rate of promotion for a grade as a whole or add materially to congestion, inability to use the English language does affect decidedly the school progress of those pupils who are unable to use the English language. Hence, we recommend:

- a. That "C" classes—classes for the instruction of pupils unable to use the English language—be provided at once, at least for all pupils in the 1A grade unable to use the English language.
- b. That the course of study be made so flexible that, where there is need, additional time may be devoted in regular classes to aiding children to acquire a working knowledge of the English language.

## VI. Promotion, Non-Promotion, and Part Time

### 1. Meaning of Whole-Time and Part-Time

Owing to the chronic lack of sufficient school rooms there have developed in the elementary schools of the city two kinds of classes—whole-time classes and part-time classes. Children in whole-time classes are in school the standard day—five hours; hence each whole-time class requires one school room. Children in part-time classes are in school but three hours and three-quarters;<sup>1</sup> hence two part-time classes are accommodated in one room on the same day. By putting large numbers of children on part-time it has been possible to provide, in a way, for all the children admitted to the elementary schools of the city.

### 2. Conditions Giving Rise to Part-Time

In addition to the increase in register, three policies of the Board of Education (all to be highly commended) have contributed to make the number of pupils (68,610) on part-time June 30, 1911, larger than the number (35,347) on part-time June 30, 1902: (1) The policy inaugurated in 1903 of admitting to school all children of school age. Prior to 1903 when a school was full the principal might, at his discretion, refuse admission. In consequence, there was in nearly every school in crowded districts a waiting list. It was not uncommon for a child to be on this list a half year and even a whole year. (2) The policy of reducing "classes of enormous and irrational sizes"—classes having from one hundred to one hundred and fifty pupils; also of reducing the register of all regular classes to fifty and less. (3) The policy of providing special

<sup>1</sup> Manual of the Board of Education, Sec. 45, 10; p. 59.

classes for over-age, backward, and defective children.<sup>1</sup> Part-time, as it now exists in the city, is, therefore, not only the result of the continued failure to provide adequate school accommodations for the increase in register, but also to provide adequate accommodations to carry into effect the educational policies of the Board of Education.

### 3. Different Attitudes Toward Part-Time

The school authorities have, as a rule, looked with favor on part-time as a means of doing, under adverse conditions, the most for the greatest number of school children; but have regarded part-time in itself as an evil which should be abolished whenever school accommodations became adequate to give each child a full day's schooling of the kind best suited to his needs.

The cost of providing modern school accommodations, the presence at times of part-time classes even in the sixth grade, and differences of opinion among theorists on the proper length of the school day for young children have led some persons to believe that, while part-time is an evil in the upper grades, it is preferable to whole-time in the two lowest grades; and hence, on both economic and educational grounds, should be made universal in the 1A and 1B grades. That is, it is maintained by some persons that the standard school day for all children in the 1A and 1B grades should be three and a half hours; and the time of attending school so arranged that one school room will accommodate two classes—one class to attend in the forenoon only, the other in the afternoon only.<sup>2</sup>

### 4. Part-Time at the End of the February-June Term, 1911

The number of pupils in part-time classes at the end of the February-June term, 1911, and hence the number affected by part-time, is given in Table XXXI. This table gives by grades the total register before promotion in the regular classes of the elementary school as of June 30, 1911, the register in whole-time classes, and the per cent. of the total register in whole-time classes; also the register in part-time classes, the per cent. of the total register in part-time classes, and the per cent. of all part-time pupils in the classes of each grade. (See page 90.)

The register in the regular classes of the elementary school before promotion June 30, 1911, was 568,612. Of these pupils, 500,002, or 87.93 per cent., were in whole-time classes, and 68,610, or 12.07 per cent. were in part-time classes—the equivalent of one pupil out of each eight on part-time. It will be observed that there were no part-time classes above the 6B grade; also that the number on part-time in the 6B

<sup>1</sup> Annual Report of the City Superintendent of Schools for 1905, pp. 53-55; also for 1911, p. 47.

<sup>2</sup> See Annual Report of the City Superintendent of Schools, 1904, p. 78.

Table XXXI

Grades	Total Register in Regular Classes as of June 30, 1911	Register in Whole-Time Classes as of June 30, 1911	Per Cent. of the Total Register in Whole-Time Classes June 30, 1911	Register in Part-Time Classes as of June 30, 1911	Per Cent. of the Total Register in Part-Time Classes June 30, 1911	Per Cent. of All Part-Time Pupils in Each Grade	Cumulative Per Cent.
1A.....	43,012	26,110	60.71	16,902	39.29	24.64	24.64
1B.....	49,832	34,056	68.34	15,776	31.66	22.99	47.63
2A.....	39,607	30,377	76.70	9,230	23.30	13.45	61.08
2B.....	44,608	36,301	81.38	8,307	18.62	12.11	73.19
3A.....	40,180	34,487	85.83	5,693	14.17	8.30	81.49
3B.....	42,911	37,868	88.25	5,043	11.75	7.35	88.84
4A.....	38,573	35,320	91.57	3,253	8.43	4.74	93.58
4B.....	39,909	37,568	94.13	2,341	5.87	3.41	96.99
5A.....	36,823	35,624	96.74	1,199	3.26	1.75	98.74
5B.....	36,035	35,357	98.12	678	1.88	.99	99.73
6A.....	32,873	32,727	99.56	146	.44	.21	99.94
6B.....	31,134	31,092	99.87	42	.13	.06	100.00
7A.....	27,667	27,667	100.00	.....	.....	.....	.....
7B.....	24,791	24,791	100.00	.....	.....	.....	.....
8A.....	21,112	21,112	100.00	.....	.....	.....	.....
9B.....	19,545	19,545	100.00	.....	.....	.....	.....
Total.....	568,612	500,002	87.93	68,610	12.07	.....	.....

The data for this table were computed from the reports made to the Committee on School Inquiry June, 1911.

Fig. 9

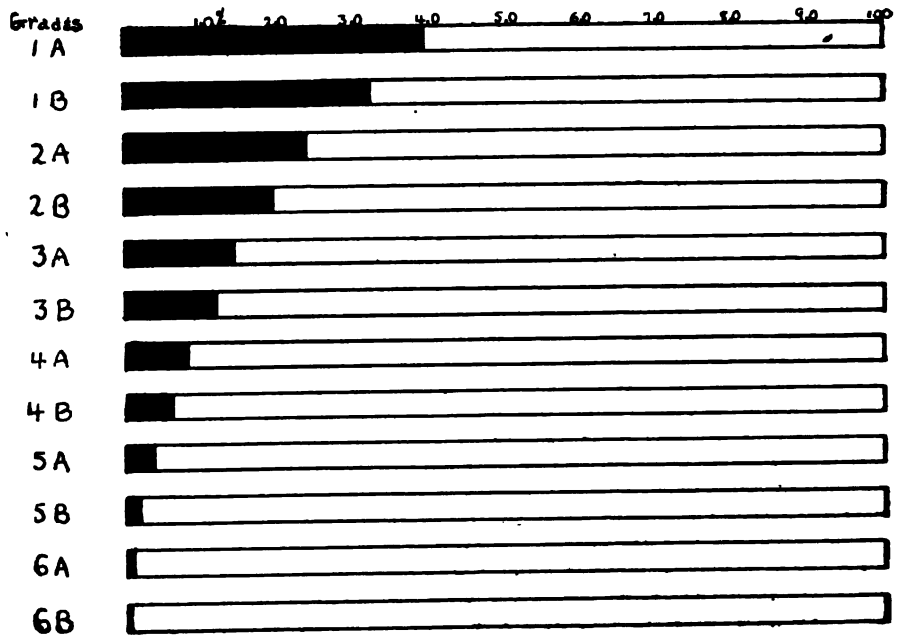


Fig. 9. Black indicates the per cent. of the register of each grade on part-time.

and 6A grades was small; hence it may be said that, at the end of the February-June term, 1911, part-time was confined to the 5B and lower grades.

Of all the pupils in the 1A grade, 16,902, or 39.29 per cent., were in part-time classes; in the 1B 15,776, or 31.66 per cent.; in the 2A 9,230, or 23.30 per cent.; in the 2B 8,307, or 18.62 per cent.; in the 3A 5,693, or 14.17 per cent.; in the 3B 5,043, or 11.75 per cent.; in the 4A 3,253, or 8.43 per cent.; in the 4B 2,341, or 5.87 per cent.; in the 5A 1,199, or 3.26 per cent.; and in the 5B 678, or 1.88 per cent. (See Fig. 9.)

Of all the pupils on part-time, 24.64 per cent. were in the 1A grade; 22.99 per cent. in the 1B; 13.45 per cent. in the 2A; 12.11 per cent. in the 2B; 8.30 per cent. in the 3A; 7.35 per cent. in the 3B; 4.74 per cent. in the 4A; 3.41 per cent. in the 4B; 1.75 per cent. in the 5A; and .99 of 1 per cent. in the 5B; or 88.84 per cent. of all part-time pupils were in the 1A-3B grades.

Fig. 10

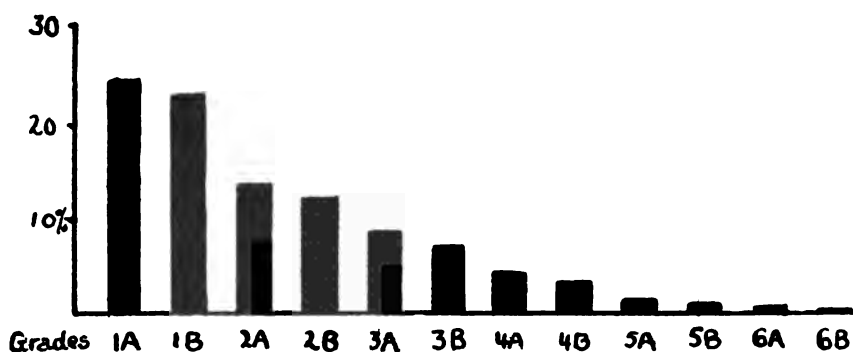


Fig. 10. Black indicates the per cent. of all part-time pupils in each grade.

Part-time pupils were distributed at the end of the Feb.-June term, 1911, among the several boroughs as follows:

Boroughs	Number of Children on Part-Time June 30, 1911	Per Cent. of Total Register on Part-Time June 30, 1911	Per Cent. of Total Number on Part-Time in Each Borough
Manhattan.....	14,318	6.18	20.87
The Bronx.....	16,907	26.15	24.64
Brooklyn.....	31,683	14.80	46.18
Queens.....	5,615	12.15	8.18
Richmond.....	87	.74	.13
Total.....	68,610	12.07	.....

### 5. The Elimination of Part-Time

Of the part-time pupils on register June 30, 1911, 35,932 were in the grades above the 1B. Hence, to have eliminated part-time from the grades above the 1B only, as has been proposed by some, accommodations would have been needed to care for 35,932 children. There were on register June 30, 1911, in the whole-time classes of the 1A and 1B grades, 60,166 children. Had these 60,166 whole-time pupils been put on part-time, as some advocate, sufficient rooms would in theory have been freed thereby to accommodate the half of 60,166, or 30,083 pupils. With this number of additional rooms rendered available, theoretically, a large proportion of part-time classes could have been eliminated in the February-June term, 1911, from the grades above the 1B.<sup>1</sup> What is true in theory of this term would probably hold true for other terms. That is, theoretically, by universalizing part-time in the 1A and 1B grades it would be possible to eliminate the major portion of all part-time from the grades above the 1B. In practice, however, part-time is found in congested districts in the 1A and 1B grades; hence to universalize part-time in the 1A and 1B grades would result merely in increasing the number of pupils on part-time in the city as a whole in these grades, but would doubtless have little effect in reducing the number of pupils on part-time in the grades above the 1B. It might also help to lessen part-time, and hence the cost of its elimination, if the Board of Education would publish monthly in what districts and schools there are ample accommodations, and in what districts and schools there is congestion.

Since there were 68,610 children on part-time at the end of the February-June term, 1911, to have eliminated all part-time from all grades school accommodations would have been required to care for 34,305 pupils.<sup>2</sup> To provide school accommodations for 34,305 pupils, allowing forty-five pupils per room, would require an investment in buildings of not less than \$7,620,000, besides the cost of upkeep and maintenance, probably \$150,000 annually.<sup>3</sup> This estimate merely indicates, of course, what it would cost to provide 34,305 seats for the corresponding number of part-time pupils. To provide this number of seats would, however, not necessarily eliminate part-time as of June 30th, 1911; the seats must be where the children are, hence, to eliminate part-time as it existed June 30th, 1911, would doubtless cost much more than

<sup>1</sup> To put the 35,932 part-time pupils above the 1B in whole-time classes, all 1A and 1B pupils (92,844) would have to be put in part-time classes; hence there would have been 92,844 pupils on part-time at the end of the February-June term, 1911, instead of 68,610. Or, to eliminate part-time in the grades above the 1B, by universalizing part-time in the 1A and 1B grades, would increase the total number of children on part-time by approximately 50 per cent.

<sup>2</sup> Two part-time classes use one room; hence to have a room for each class, additional rooms would need to be provided for one-half of the pupils on part-time (68,610) or for 34,305 pupils.

<sup>3</sup> For the basis of these estimates, see this report, note 3, p. 61.

the foregoing estimated sum. What it would actually cost is impossible to estimate.<sup>1</sup>

## 6. Questions Involved in Part-Time

The questions involved in part-time may be thus stated: Do the best interests of children demand that each child, in whatever grade, shall enjoy a whole day's schooling, and hence that the foregoing sum be spent in eliminating part-time? Or can the interests of children be equally well conserved by universalizing part-time in the 1A and 1B grades, thereby doing away with it above the 1B grade and saving that sum to the city? Or are the best interests of children conserved by permitting them, as now, to be in part-time classes one or more terms in the grades below the 7A? In a word, is part-time an evil in all grades? Or is it an evil only above the 1B grade? Or does it do children in the elementary school no harm to be on part-time one term or more?

A definite answer to these questions would require an investigation exceeding the means and the time at the disposal of the present inquiry. It would need to consider the problem from at least three points of view—the physical, the educational, and the social or ethical. It would be necessary, among other things, (1) to measure the effect of the two kinds of classes on the health and physical development of children; (2) to examine the school achievements of the children in each kind of class; and (3) to study the differences in the interests, habits, and conduct of children in school the whole day (five hours) and of children in school only a part of the day (three hours and three-quarters).

With the time and means at our disposal it has been possible, in addition to holding conferences with principals and teachers, to collect data on but one phase of the educational aspect of the problem—the rate of promotion in the two kinds of classes.

## 7. Rate of Promotion in Whole-Time and in Part-Time Classes

Table XXXII gives by grades, both for whole-time classes and for part-time classes, the per cent. of the register as of June 30, 1911, promoted and the per cent. not promoted; also the per cent. of promotion in whole-time classes over or under the per cent. of promotion in part-time classes. (See page 94.)

In the twelve grades in which there were both whole and part-time classes it will be observed that the rate of promotion in whole-time classes was higher than in part-time classes in nine and lower in three grades. The rate of promotion was lower in whole-time classes in the 4A, the 4B, and in the 6B grades, and higher in the 1A-3B, the 5A, the 5B, and in the 6A grades. The largest difference was in the 6A, where 4.78

<sup>1</sup> Since each part-time class has its teacher, the question of additional teachers is not involved either in the continuance or the elimination of part-time.

Table XXXII

Grades	Whole-Time Classes		Part-Time Classes		Per Cent. of Promotion in Whole-Time Classes Over or Under Per Cent. of Promotion in Part-Time Classes
	Per Cent. of Register as of June 30, 1911, Promoted	Per Cent. of Register as of June 30, 1911, Not Promoted	Per Cent. of Register as of June 30, 1911, Promoted	Per Cent. of Register as of June 30, 1911, Not Promoted	
1A.....	76.96	23.04	74.56	25.44	2.40
1B.....	88.87	11.13	88.45	11.55	.42
2A.....	89.29	10.71	88.24	11.76	1.05
2B.....	90.86	9.14	89.39	10.61	1.47
3A.....	89.87	10.13	89.34	10.66	.53
3B.....	90.84	9.16	90.03	9.97	.81
4A.....	89.91	10.09	90.32	9.68	— .41
4B.....	90.16	9.84	90.43	9.57	— .27
5A.....	88.94	11.06	86.32	13.68	2.62
5B.....	89.74	10.26	89.38	10.62	.36
6A.....	89.03	10.97	84.25	15.75	4.78
6B.....	89.45	10.55	90.48	9.52	— 1.03
7A.....	87.97	12.03	.....	.....	.....
7B.....	89.12	10.88	.....	.....	.....
8A.....	89.52	10.48	.....	.....	.....
8B.....	94.44	5.56	.....	.....	.....

The data for this table were computed from the reports to the Committee on School Inquiry, June, 1911.

per cent. more pupils were promoted in whole-time classes than in part-time classes. A difference in the rate of promotion in the lower grades is, however, more significant than in the higher grades, because 88.84 per

Table XXXIII

Grades	Register in Part-Time Classes as of June 30, 1911	Number in Part-Time Classes Promoted June 30, 1911	Number in Part-Time Classes Who Would Have Been Promoted at the Rate in Whole-Time Classes	Increase in Number That Would Have Been Promoted at the Rate in Whole-Time Classes
1A.....	16,902	12,602	13,008	406
1B.....	15,776	13,954	14,020	66
2A.....	9,230	8,145	8,241	96
2B.....	8,307	7,426	7,548	122
3A.....	5,693	5,086	5,116	30
3B.....	5,043	4,540	4,581	41
4A.....	3,253	2,938	2,925	— 13
4B.....	2,341	2,117	2,111	— 6
5A.....	1,199	1,035	1,066	31
5B.....	678	606	608	2
6A.....	146	123	130	7
6B.....	42	38	38	0
Total.....	68,610	58,610	59,392	782 (Net Increase)

The data for this table were computed from the reports made to the Committee on School Inquiry, June, 1911.



cent. of all part-time pupils are in the 1A-3B grades,<sup>1</sup> and in each of these grades the rate of promotion was lower in part-time than in whole-time classes.

The significance of the higher rate of promotion in whole-time classes than in the part-time classes in nine out of twelve grades is clearly seen if the actual number of pupils promoted in part-time classes is compared with the number that would have been promoted had the rate of promotion, grade for grade, been the same in part-time as in whole-time classes.

Table XXXIII gives by grades the register in part-time classes as of June 30, 1911, the number in part-time classes promoted, June 30, 1911, and the number that would have been promoted at the rate in whole-time classes; and also the difference between the last two numbers.

Had the rate of promotion been the same in the part-time classes of the 1A grade as it was in the whole-time classes of this grade the number of part-time promotions would have been increased, it will be observed, by 406; in the 1A-3B grades, which contain 88.84 per cent. of all part-time pupils, by 731; and in part-time classes as a whole there would have been a net increase of 782. That is, the lower rate of promotion prevailing in part-time classes resulted in the 1A grade in one less promotion to each forty-one 1A pupils; in the 1A-3B grades in one less promotion to each eighty-three pupils in these grades; and in part-time classes as a whole in one less promotion to each eighty-seven part-time pupils. Rate of promotion taken by itself is not a satisfactory measure of school achievements, because, as stated above, promotions are at times made for other reasons than that pupils are prepared for the work of the next grade—i. e., because of the crowded conditions of a school. Hence, there is no reason to believe that the school achievements of pupils promoted in part-time classes were higher by reason of the lower rate than the achievements of pupils promoted in whole-time classes. Indeed, since part-time indicates congestion, and congestion may tend to "forced" promotions, it is quite probable that the achievements of the pupils promoted in part-time classes were not higher, to say the least, than the achievements of pupils promoted in whole-time classes.

Although the foregoing facts would, therefore, indicate that the opportunities for work, and hence for promotion, when judged solely on the basis of the difference in rate of promotion at the end of the February-June term, 1911, were only slightly less favorable in part-time than in whole-time classes, the physical, the educational, and social questions involved in judging of the relative merits of these two kinds of classes, the custom in the other cities of the country of making every effort to provide school accommodations for an all-day school for all elementary school children, and the strong demand in the community that each child, whatever his grade, have a whole day's schooling, justify

<sup>1</sup> See Table XXXI, p. 90.

the Board of Education in demanding the funds to eliminate part-time from all grades. But should the Board of Education request the funds to eliminate part-time from all the grades, the Board of Estimate and Apportionment in view of the foregoing facts would be justified in requesting of the Board of Education an investigation of the physical, educational and social problems involved in determining the relative merits of part-time and whole-time classes to the end that a definite policy with regard to school accommodations may be fixed upon and carried out.

### 8. Part-Time as a Factor in Non-Promotion and Congestion

The lower rate of promotion prevailing at the end of the February-June term, 1911, in part-time classes resulted, as we have seen, in but 782 less promotions out of a total of 68,610 part-time pupils than would have been the case had the rate of promotion been the same as in whole-time classes.<sup>1</sup> Hence, the *direct effect* of part-time on promotions, as promotions were made at the end of the February-June term, 1911, was small. There may, however, be certain important *indirect effects*, such as indifference to school work, bad conduct, and truancy, which affect materially the future progress of children. These possible indirect effects of part-time should be thoroughly investigated.

If part-time was a small factor in increasing the number of non-promotions at the end of the February-June term, 1911, it was a still smaller factor in contributing to congestion. At most, owing to the lower rate of promotion prevailing in part-time classes, there were but 782 additional pupils left in the several grades to augment the numbers in these grades in September. There is every reason to believe that these 782 additional pupils, distributed as they were among nine different grades, were all absorbed without the formation of a single additional class and without materially adding to the numbers in any one class.

Part-time, therefore, when judged solely in view of promotions as they were made at the end of the February-June term, 1911, is but a slight factor in increasing the number of non-promotions, and probably had no effect on increasing congestion.

### 9. Kinds of Part-Time Classes

In the foregoing discussion the rate of promotion at the end of the February-June term, 1911, in part-time classes has been contrasted with the rate of promotion in whole-time classes; hence, part-time classes have been treated as a whole—that is, as if there were but one kind. There are, however, four different kinds of part-time classes: A. M. part-time classes, P. M. part-time classes, alternating part-time classes, and “Ettinger” part-time classes.

In A. M. part-time classes pupils attend school for at least a term in the forenoon only; in P. M. part-time classes for at least a term in the

<sup>1</sup> See Table XXXIII, p. 94.

afternoon only; while in alternating part-time classes pupils attend a part of a term in the forenoon only and a part of a term in the afternoon only.

The length of the school day in these three kinds of part-time classes varies from three hours and three-quarters to four hours. When the day is three hours and three-quarters in length A. M. part-time classes begin work at 8.30 and stop at 12.15; P. M. part-time classes begin at 12.30 and continue to 4.15. When the school day is four hours the time is divided thus: A. M. part-time classes, 8.15 to 12.15, and P. M. part-time classes, 12.15 to 4.15. The hours are the same for alternating part-time classes, but the forenoon classes alternate with the afternoon classes. These changes from forenoon to afternoon and from afternoon to forenoon are made in some schools at the end of each fourth week, and in others at the end of each ten weeks.

While three hours and three-quarters to four hours is the length of the school day in these three kinds of part-time classes, pupils in each kind, falling behind and in need of special help, are brought back for an hour to an hour and a quarter for individual instruction. Children in A. M. part-time classes return in the afternoon and children in P. M. part-time classes come in the forenoon. Any available nook or corner of the school building is used for this individual work. In this way a considerable number of the children in these three kinds of part-time classes not only receive a whole day's schooling (five hours), but receive a considerable amount of personal attention.<sup>1</sup>

Ettinger part-time classes are distinguished from A. M., P. M., and alternating part-time classes by the fact that in Ettinger part-time classes the school day is practically five hours in length. Children in Ettinger part-time classes are not under actual instruction five hours per day, but they are under the influence of the school for that length of time daily. This is accomplished by alternating each two classes between a classroom and the "yard."<sup>2</sup> When one class is receiving instruction in the classroom the other is in the "yard," where they have play, physical training, and drill—particularly in the three R's. Each class is thus kept under educative direction the whole day (five hours).<sup>3</sup>

The following is an illustrative daily time schedule for two Ettinger part-time classes:

First Class		Second Class	
8:30 — 10:	Classroom	9:30 — 10:	Yard
10: — 10:45	Yard	10: — 10:45	Classroom
10:45 — 11:45	Classroom	10:45 — 11:45	Yard
11:45 — 12:45	Noon Recess	11:45 — 12:45	Classroom
12:45 — 1:45	Classroom	12:45 — 1:45	Noon Recess
1:45 — 2:30	Yard	1:45 — 3:30	Classroom

<sup>1</sup> Manual of Board of Education, Section 45, Paragraph 12, p. 60.

<sup>2</sup> Yard is the term used in New York City to designate that portion of the first floor of a school building which serves as an assembly place for children prior to the opening of school and for play and physical training.

<sup>3</sup> As the yard takes the place of a classroom for a part of the school day, it is obvious that Ettinger part-time classes are to be found only in schools having yards.

The reasons principals prefer one kind of part-time to another kind are revealed in the following quotations taken from special reports from principals to this Committee:

"I do not believe in alternating the time . . . because it leads to irregular habits of living, both in sleeping and eating. The boys are best in the morning, when they come clean and not all tired out with hard play. I find that the mothers let the girls sleep later for the afternoon work, and they, too, come clean and rested."

"Part-time boys are held to better attendance and less truancy, from homes where the mother is employed, by attendance in the morning classes. If on the street during the forenoon it is hard for the mothers to find the boys at 11.30 for luncheon and prepare them for school."

"The midterm alternation I have tried thoroughly and found impracticable because of the interference with the formation of habits of punctuality. It is almost impossible to secure regular attendance and a habit of being on time if every ten weeks the time to come changes. It also makes serious trouble for the parents."

"We aim to alternate them (classes) each term. Any more frequent change is troublesome to the home domestic arrangements for luncheon, work hours, etc. Many of the mothers are washerwomen or otherwise employed . . . and frequent changes discommode them very much."

"I believe, in order to be just to every part-time pupil, it is necessary so to distribute the period of instruction that no classes or group of classes will receive instruction during an entire term only in the afternoon, when physical and mental rhythm are at greater or less ebb. Pupils who report in the afternoon are generally tired because of a morning's play on the streets. They are less receptive than those who come in the morning."

#### 10. Number of Pupils in Each Kind of Part-Time Class

The distribution at the end of the February-June term, 1911, of part-time pupils among the several kinds of part-time classes is shown by Table XXXIV. This table gives by grades the register and the per cent. of all part-time pupils on register June 30, 1911, in Ettinger part-time classes; also the same facts for alternating part-time classes, for A. M. part-time classes, and for P. M. part-time classes.

The 68,610 pupils on part-time June 30, 1911, were distributed as follows: 5,723, or 8.34 per cent., in Ettinger part-time classes; 43,939, or 64.04 per cent., in alternating part-time classes; 9,461, or 13.79 per cent., in A. M. part-time classes; and 9,487, or 13.83 per cent., in P. M. part-time classes. The part-time pupils in each of the grades 1A-3B were distributed in about the same proportion among the different kinds of part-time classes. It will be noted also that there were no pupils in Ettinger part-time classes above the 4A grade, that the per cent. of all part-time pupils of each grade in alternating part-time classes decreases

in each of the grades above the 4A, and that there is a corresponding increase in the per cent. in these grades in A. M. and in P. M. part-time classes.

If, therefore, the different kinds of part-time are arranged in view

Table XXXIV

Part-Time Classes									
Grades	Total Register as of June 30, 1911	Ettinger Part-Time Classes		Alternating Part-Time Classes		A. M. Part-Time Classes		P. M. Part-Time Classes	
		Register as of June 30, 1911	Per Cent. of Total Number of Part-Time Pupils in Ettinger Classes	Register as of June 30, 1911	Per Cent. of Total Number of Part-Time Pupils in Alternating Classes	Register as of June 30, 1911	Per Cent. of Total Number of Part-Time Pupils in A. M. Classes	Register as of June 30, 1911	Per Cent. of Total Number of Part-Time Pupils in P. M. Classes
1A	16,902	1,526	9.03	10,693	63.26	2,246	13.29	2,437	14.42
1B	15,776	1,755	11.12	10,111	64.09	1,651	10.47	2,259	14.32
2A	9,230	927	10.04	5,836	63.23	1,147	12.43	1,320	14.30
2B	8,307	552	6.64	5,747	69.18	1,155	13.91	853	10.27
3A	5,693	370	6.50	3,765	66.13	850	14.93	708	12.44
3B	5,043	335	6.64	3,389	67.20	771	15.29	548	10.87
4A	3,253	258	7.93	2,056	63.20	559	17.19	380	11.68
4B	2,341	.....	.....	1,431	61.13	501	21.40	409	17.47
5A	1,199	.....	.....	516	43.04	333	27.77	350	29.19
5B	678	.....	.....	291	42.92	205	30.24	182	26.84
6A	146	.....	.....	62	42.47	43	29.45	41	28.08
6B	42	.....	.....	42	100.00	.....	.....	.....	.....
Total....	68,610	5,723	8.34	43,939	64.04	9,461	13.79	9,487	13.83

The data for this table were computed from the reports to the Committee on School Inquiry, June 30, 1911.

of the total number of pupils in each kind June 30, 1911, the order would be as follows:

Alternating Part-Time Classes.

P. M. Part-Time Classes.

A. M. Part-Time Classes.

Ettinger Part-Time Classes.

This same order also holds, with slight exceptions, for each of the grades.

## II. Rate of Promotion in A. M. and in P. M. Part-Time Classes

Principals are generally agreed that better educational results are obtained in A. M. part-time classes than in P. M. part-time classes. Table XXXV gives by grades the rate of promotion in A. M. and in P. M. part-time classes at the end of the February-June term, 1911; also the rate of promotion in A. M. part-time classes over or under the rate of promotion in P. M. part-time classes. (See page 100.)

Table XXXV

Grades	Rate of Promotion in A. M. Part-Time Classes	Rate of Promotion in P. M. Part-Time Classes	Rate of Promotion in A. M. Part-Time Classes Over or Under Rate of Promotion in P. M. Part-Time Classes
1A.....	78.85	72.34	6.51
1B.....	89.40	88.36	1.04
2A.....	85.79	86.51	— .72
2B.....	87.36	90.50	— 3.14
3A.....	90.58	88.70	1.88
3B.....	89.75	88.69	1.06
4A.....	89.62	87.89	1.73
4B.....	90.02	86.80	3.22
5A.....	82.28	86.00	— 3.72
5B.....	90.73	87.36	3.37
6A.....	81.40	78.05	3.35
Total.....	86.13	83.99	2.14

The rate of promotion was higher, it will be observed, in A. M. part-time classes in all grades, with the exception of the 2A, the 2B, and the 5A, than in P. M. part-time classes, varying from 6.51 per cent. in the 1A to 1.04 per cent. in the 1B; also the total rate in A. M. part-time classes was higher than in P. M. part-time classes by 2.14 per cent. It therefore appears that A. M. part-time classes afford more favorable opportunities for advancement than P. M. part-time classes, and hence, on the assumption that conditions of instruction and standards of promotion were the same in the two kinds of part-time classes—a legitimate assumption—A. M. part-time classes are preferable to P. M. part-time classes.

It is thus possible to compare the rate of promotion in A. M. and in P. M. part-time classes and to judge of the relative efficiency of these two kinds of part-time; but it is impossible to compare the rate of promotion in A. M. part-time classes and in P. M. part-time classes separately with the rate of promotion in whole-time classes or in alternating and in Ettinger part-time classes.

The conditions which give rise to part-time require that one room accommodate two classes. Hence, that there may be classes which attend school for a term in the forenoon only, there must also be classes which attend school for a term in the afternoon only. A. M. and P. M. part-time classes are, therefore, inseparably connected; they are two parts of a whole and one part cannot exist without the other. Consequently, A. M. and P. M. part-time classes must be combined and viewed as one kind of part-time if comparisons are made between the relative efficiency of whole-time classes and different kinds of part-time classes.

**12. Rate of Promotion in Whole-Time and in Each Kind of Part-Time Class**

Table XXXVI gives by grades<sup>1</sup> the number out of each one hundred pupils on register promoted June 30, 1911, in whole-time classes, in Ettinger part-time classes, in alternating part-time classes, and in A. M. and P. M. part-time classes combined:

**Table XXXVI**

Grades	Number Promoted June 30, 1911 Out of Each 100 on Register in Whole-Time Classes	Number Promoted June 30, 1911 Out of Each 100 on Register in Ettinger Part- Time Classes	Number Promoted June 30, 1911 Out of Each 100 on Register in Alternating Part- Time Classes	Number Promoted June 30, 1911 Out of Each 100 on Register in A. M. and P. M. Part-Time Classes Combined
1A.....	77	78	74	75
1B.....	89	91	88	89
2A.....	89	92	89	86
2B.....	91	91	89	89
3A.....	90	92	89	90
3B.....	91	95	90	89
4A.....	90	97	90	89
4B.....	90	..	92	89
5A.....	89	..	89	84
5B.....	90	..	90	89

The data for this table were computed from the reports made to the Committee on School Inquiry June, 1911.

**(1) Whole-Time and Ettinger Part-Time Classes**

It will be observed that one more pupil out of each hundred was promoted in the 1A grade in Ettinger part-time classes than in whole-time classes; in the 1B two more; in the 2A three more; in the 3A two more; in the 3B four more; and in the 4A seven more. In the 2B the number promoted was the same in the two kinds of classes. With this one exception, more pupils were promoted in Ettinger part-time classes in each grade in which there were such classes than were promoted in whole-time classes in the same grades.

Judged solely by rate of promotion, Ettinger part-time classes appear to be preferable to whole-time classes. But part of the difference in rate of promotion in favor of Ettinger part-time classes may be due to the difference in the number of pupils on register. There were, for example, in 1A whole-time classes, 26,115 pupils and in 1A Ettinger part-time classes 1,526; in 3B whole-time classes 37,868, and in 3B Ettinger part-time classes 370. Also part of this difference in rate of promotion might

<sup>1</sup>There were only sixty-two pupils in the 6A and forty-two in the 6B grades in alternating part-time classes, and only eighty-four pupils in the 6A and none in the 6B of A.M. and P.M. part-time classes combined; hence these grades have been omitted from this table. See this report, Table XXXIV, p. 99.

be due to the influence of congestion. Further, rate of promotion throws no light upon the relative educational superiority of these two kinds of classes. To determine their relative superiority would require an extensive investigation, among other things, of the educational achievements, of the punctuality and regularity of attendance, of the school conduct, and of the health of the children in these two kinds of classes. Hence, Ettinger part-time classes cannot be declared preferable to whole-time classes merely on the ground of a higher rate of promotion for the February-June term, 1911.

**(2) Whole-Time and Alternating Part-Time Classes**

If the promotions in whole-time and alternating part-time classes are compared, it will be observed (a) that in only one grade, the 4B, was the number of pupils promoted per hundred in alternating part-time classes higher than the number promoted in whole-time classes; (b) that the rate of promotion in the 2A, 4A, 5A, and 5B grades was the same; and (c) that, in each of the grades 1A-3B (with the exception of the 2A, as noted above), containing 90 per cent. of all the children in alternating part-time classes, the number of pupils promoted per hundred was less than in whole-time classes. Hence, when judged solely on the basis of the rate of promotion at the end of the February-June term, 1911, alternating part-time classes afford less favorable opportunities for advancement than whole-time classes.

**(3) Whole-Time and A. M. and P. M. Part-Time Classes**

Further, it will be observed, that, in two grades, the 1B and the 3A, the number of pupils promoted per hundred in A. M. and P. M. part-time classes combined is the same as in whole-time classes, but that in all other grades the number promoted per hundred pupils is less. Hence, the opportunities for advancement in A. M. and P. M. classes combined are less favorable than in whole-time classes.

**(4) Ettinger Part-Time and Alternating and A. M., and P. M. Part-Time Classes**

Since the rate of promotion was higher at the end of the February-June term, 1911, in Ettinger part-time classes than in whole-time classes, and the rate of promotion was lower both in alternating part-time classes and in A. M. and P. M. part-time classes combined, it follows that the rate of promotion was higher in Ettinger part-time classes than in either of the two other kinds of part-time classes. Hence, Ettinger part-time classes afford more favorable conditions for advancement than either alternating or A. M. and P. M. part-time classes.

Considering the higher rate of promotion in Ettinger part-time classes, also the fact that in these classes children are under the influence



of the school the whole day (five hours), and the favorable experience of teachers and principals with these classes, we are of the opinion that the Board of Education should insist, when part-time is necessary, that principals establish, wherever possible, Ettinger part-time classes.<sup>1</sup> At least this should be done until further investigation into the efficiency of the different kinds of part-time affords evidence that it is better to do otherwise.

#### (5) Alternating and A. M. and P. M. Part-Time Classes

Finally, it remains to consider the relative efficiency of alternating and A. M. and P. M. part-time classes. Table XXXVII gives by grades the register as of June 30, 1911, in A. M. and P. M. part-time classes combined, the actual number promoted, the number that would have been promoted had the same rate of promotion prevailed in A. M. and P. M. part-time classes as in alternating part-time classes; also the increase in number that would have been promoted at the rate of promotion in alternating part-time classes:

Table XXXVII

Grades	Register as of June 30, 1911 in A. M. and P. M. Part-Time Classes Com- bined	Actual Number Promoted June 30, 1911 in A. M. and P. M. Part-Time Classes Com- bined	Number That Would Have Been Promoted at Rate in Alternating Part-Time Classes	Increase in Number That Would Have Been Promoted at the Rate in Alternating Part-Time Classes
1A.....	4,683	3,534	3,452	—82
1B.....	3,910	3,472	3,434	—38
2A.....	2,467	2,126	2,184	58
2B.....	2,008	1,781	1,797	16
3A.....	1,558	1,398	1,384	—14
3B.....	1,319	1,178	1,184	6
4A.....	939	835	846	11
4B.....	910	806	833	27
5A.....	683	575	609	34
5B.....	387	345	347	2
6A.....	84	67	76	9
Total.....	18,948	16,117	16,146	29 (Net Increase)

The data for this table were computed from the reports made to the Committee on School Inquiry, June, 1911.

Table XXXVII shows that, had the rate of promotion been the same in A. M. and P. M. part-time classes as in alternating part-time classes, eighty-two less pupils would have been promoted in the 1A grade; thirty-eight less in the 1B; and fourteen less in the 3A; whereas fifty-eight more would have been promoted in the 2A; sixteen more in the 2B;

<sup>1</sup> Ettinger part-time classes can, of course, only be introduced in schools having suitable yards.

and eighty-nine more in the grades 3B-6A; or, in all grades combined, there would have been a net increase of only twenty-nine additional promotions out of 18,948 pupils. There is, therefore, no practical difference between the rate of promotion in alternating and in A. M. and P. M. part-time classes combined.

It will, however, be remembered that the rate of promotions in A. M. part-time classes, when considered separately from P. M. part-time classes, was found to be considerably higher in all but two grades than in P. M. part-time classes.<sup>1</sup> Hence, the disadvantages of part-time fall most heavily on those pupils who attend school for a term in the afternoon only. A. M. part-time classes and P. M. part-time classes are alternated—that is, pupils who attend one term in the forenoon only attend the following term, as a rule, in the afternoon only. The disadvantages of attending in the afternoon only are thus somewhat equalized. There is, however, no assurance that a pupil on part-time one term will be on part-time the next; hence, no assurance that the disadvantages suffered by attending school one term in the afternoon only will be equalized by attendance the following term in the forenoon only. In view, therefore, not only of the slight difference in the rate of promotion in favor of alternating part-time classes, but also in view of the probability of a more equitable distribution of the disadvantages of part-time in such classes, we are inclined to believe that alternating part-time classes are to be preferred to A. M. and P. M. part-time classes.

### 13. Conclusions

The conclusions from the foregoing discussion may be summarized as follows:

(1) There were, at the end of the February-June term, 1911, 68,610 pupils in part-time classes—the equivalent of one pupil out of each eight on register. 16,902, or 24.64 per cent., were in the 1A grade; 15,776, or 22.99 per cent., in the 1B; 9,230, or 13.45 per cent., in the 2A; 8,307, or 12.11 per cent., in the 2B; and the remaining 18,395, or 26.81 per cent., were in the grades 3A-6B.

(2) The rate of promotion at the end of the February-June term, 1911, was higher in whole-time classes than in part-time classes in nine out of the twelve grades in which there were both kinds of classes, but, had the higher rate of promotion in whole-time classes prevailed in part-time classes, the number of promotions in part-time classes would have been increased by only 782.

(3) Part-time, so far as our data go, is but a very slight factor in increasing the number of non-promotions, and probably augments congestion not at all.

(4) The rate of promotion at the end of the February-June term, 1911, was not only higher in Ettinger part-time classes than in whole-

<sup>1</sup> See Table XXXV, p. 100.

time classes, but higher than in any other kind of part-time class. For this reason, and also because pupils in Ettinger part-time classes are under the influence of the school for five hours daily, the Board of Education may well insist, when part-time is necessary, that principals establish, wherever possible, Ettinger part-time classes.

(5) The rate of promotion differs little in alternating and in A. M. and P. M. part-time classes combined, but, since the disadvantages of part-time are probably more equally distributed in alternating than in A. M. and P. M. part-time classes, alternating part-time classes are preferable to A. M. and P. M. part-time classes.

(6) Considering the difference in rate of promotion in favor of whole-time classes, the physical, the educational, and the social questions involved in judging of the relative merits of whole-time and part-time classes, the custom in other cities of the country of making every effort to provide accommodations for an all-day schooling for all elementary school pupils, the strong demand in the community that each child, whatever his grade, have a whole day's schooling, and the legal and social right of each child to a whole day's schooling, the Board of Education is justified in attempting to eliminate part-time from all the grades. But should the Board of Education request the funds to eliminate part-time from all the grades, the Board of Estimate and Apportionment, in view of the differences of opinion and questions involved, would be justified in requesting of the Board of Education an investigation into the relative merits of whole and part-time classes, to the end that a definite policy with regard to school accommodation may be fixed on and carried out.

## VII. Pupils Leaving the Elementary School<sup>1</sup>

### 1. Failure to Collect Data on Pupils Leaving School

In all of the foregoing discussions the pupils on register at the end of the term only have been considered. But the register at the end of the term does not include the thousands of pupils, exclusive of transfers, who have been on register and who have left before the end of the term.

The By-Laws of the Board of Education provide that "the principal of each school shall keep a record which shall contain the names of all pupils dropped from the school register, with a statement of the reason therefor."<sup>2</sup> But no report has ever been made for the city as a whole

<sup>1</sup> Leaving is used to include pupils who leave school temporarily and also pupils who leave permanently.

<sup>2</sup> Manual of the Board of Education, Section 45, 2a, pp. 57-58.

on the number of pupils leaving the elementary schools during a term or a school year and on the reasons therefor.

## 2. Number of Pupils Leaving During February-June Term, 1911

Table XXXVIII<sup>1</sup> gives the number of pupils, by sexes, leaving the regular classes of each grade during the February-June term, 1911; also by sexes the per cent. of the total enrollment in the regular classes of each grade leaving:

Table XXXVIII

Grades	Number of Pupils Leaving Regular Classes Feb.-June Term, 1911			Per Cent. of Total Enrollment in Regular Classes Leaving		
	Boys	Girls	Total	Boys	Girls	Total
1A	1,245	1,219	2,464	5.38	5.46	5.42
1B	1,128	1,066	2,194	4.27	4.16	4.22
2A	816	810	1,626	3.85	4.04	3.94
2B	831	818	1,649	3.56	3.57	3.56
3A	745	732	1,477	3.55	3.55	3.55
3B	703	768	1,471	3.17	3.46	3.31
4A	651	727	1,378	3.22	3.68	3.45
4B	726	725	1,451	3.47	3.54	3.51
5A	788	813	1,601	4.07	4.26	4.17
5B	1,141	1,050	2,191	6.07	5.40	5.73
6A	1,409	1,250	2,659	7.93	7.03	7.48
6B	1,456	1,212	2,668	8.52	7.25	7.89
7A	1,611	1,444	3,055	10.60	9.30	9.94
7B	1,247	1,225	2,472	9.30	8.85	9.07
8A	955	923	1,878	8.52	7.83	8.17
8B	405	356	761	4.05	3.45	3.75
Total.....	15,857	15,138	30,995	5.26	5.07	5.17

The data for this table were computed from reports made to the Committee on School Inquiry, June, 1911.

Fifteen thousand eight hundred and fifty-seven (15,857) boys and 15,148 girls, a total of 30,995, or 5.17 per cent. of the total enrollment,<sup>2</sup> dropped from the regular classes of the elementary schools during the February-June term, 1911; or one pupil in each twenty enrolled in regular classes left school before the end of the term. The number leaving the several grades varied from 761, or 3.75 per cent. of the total enrollment, in the 8B grade, to 3,055, or 9.94 per cent., in the 7A.

From the 1A to the 5A the per cent. of boys leaving was slightly lower than the per cent. of girls leaving, whereas, from the 5B on, the reverse was true. Taking the several grades together there was, however, little difference between the losses among boys, 5.26 per cent., and

<sup>1</sup> These data have to do with pupils leaving regular classes only. Pupils dropping from special classes are not included.

<sup>2</sup> Total enrollment is the sum of the register at the end of the term plus all pupils, exclusive of transfers, leaving before the end of the term.

the losses among girls, 5.07 per cent., a difference of but .19 of 1 per cent. in favor of girls.

### 3. Ages and Grades of Pupils Leaving School

Whether pupils leaving school are out temporarily or permanently depends largely on the grade they are in and on their age at leaving. Table XXXIX gives by grades the number of pupils leaving the regular classes at each of the several ages: under six, six to seven, etc.; also the total number leaving at each age, and the per cent. leaving at each age of the total number dropping out. (See page 108.)

The number of pupils leaving the regular classes at each of the several ages from six to seven up to thirteen to fourteen, inclusive, is quite uniform, varying from 1,843 (12 to 13) to 2,515 (7 to 8), or from 5.95 per cent. to 8.11 per cent. of the total number leaving. The losses from fourteen to fifteen were the largest, 6,312, or 20.37 per cent. The number dropping out from fifteen to sixteen was likewise large, 4,571, or 14.75 per cent., as was also the number from sixteen to seventeen, 2,381, or 7.68 per cent.

Seventeen thousand, three hundred and twelve (17,312), or 55.84 per cent. of the pupils leaving regular classes, were under fourteen. Of these, 2,190 were less than seven years of age and were, therefore, not of compulsory school age; 15,122 were, however, between seven and fourteen, and, in consequence, were subject to the Compulsory Education Law; 13,683, or 44.16 per cent., were fourteen and above. Of these, 822 were between fourteen and sixteen, and were also in the grades 1A-5A, hence could not qualify for labor certificates; the remaining 12,861 were, however, free, by reason of their age and their grade, to drop from school permanently. 15,944 (15,122 plus 822), or 51.44 per cent. of those leaving regular classes, were, therefore, subject to the Compulsory Education Law, and 2,190 were under compulsory school age. Hence, of the 30,995 pupils leaving during the February-June term, 1911, 18,134 (15,944 plus 2,190), or 58.51 per cent., will doubtless, in most part return to school; but that 15,944 pupils of compulsory school age dropped from school during a single term is a serious matter and investigation should be made as to what extent these pupils had legal reasons for being out of school, and to what extent their being out was due to inefficiency on the part of the Department of Compulsory Attendance.

### 4. Effects on Reports of Taking No Account of Pupils Leaving

The fact that no account is taken of the thousands of pupils leaving school leads to a defect in certain of the reports of the City Superintendent of Schools. A report on the number of pupils in the elementary schools of each of the several ages—under five, five to six, etc.—will

Table XXXIX

Age	Grade																Total	Per Cent of Total Number Leaving at Each Age
	1A	1B	2A	2B	3A	3B	4A	4B	5A	5B	6A	6B	7A	7B	8A	8B		
Under 6 Years.....	45	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	50	16
6 to 7.....	1,512	570	43	12	2	9	...	...	...	...	...	...	...	...	...	...	2,140	6.90
7 to 8.....	662	970	550	281	43	177	30	8	...	...	...	...	...	...	...	...	2,515	8.11
8 to 9.....	177	430	591	613	397	445	258	117	1	...	...	...	...	...	...	...	2,425	7.82
9 to 10.....	42	140	262	412	436	361	373	374	209	94	...	...	...	...	...	...	2,164	6.98
10 to 11.....	14	45	99	183	294	235	293	318	313	248	35	10	2	...	...	...	2,093	6.75
11 to 12.....	8	16	48	74	158	107	173	232	249	276	132	75	27	9	...	...	1,955	6.31
12 to 13.....	...	...	...	...	69	60	106	143	232	293	308	297	237	211	131	...	1,843	5.95
13 to 14.....	...	...	...	...	42	36	65	99	243	643	1,038	1,137	1,299	953	593	...	2,127	6.86
14 to 15.....	...	...	...	...	20	20	45	80	177	420	583	683	930	775	603	...	6,312	20.37
15 to 16.....	...	...	...	...	7	20	31	72	179	420	262	253	379	378	420	...	4,571	14.75
16 to 17.....	1	1	...	...	8	20	4	7	128	179	16	23	26	54	68	...	2,381	7.68
17 to 18.....	...	...	...	...	...	1	...	...	...	13	1	2	6	8	20	11	358	1.16
Over 18.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	61	.20
Total.....	2,464	2,194	1,626	1,649	1,477	1,471	1,378	1,451	1,601	2,191	2,659	2,668	3,065	2,472	1,878	761	30,995	....

The data for this table were computed from the reports made to the Committee on School Inquiry, June, 1911.

illustrate this defect. Table XL gives the number of pupils in the elementary school on register June 30, 1911, of each of the several ages—under five, five to six, etc.; the number of each age, together with the pupils leaving regular classes during the February-June term, 1911; also the number of pupils of each age leaving regular classes.

Table XL

Elementary Schools			
Ages	(1) <sup>1</sup> Number of Pupils of Each Age on Register June 30, 1911	(2) <sup>2</sup> Number of Pupils of Each Age on Register, June 30, 1911, Including Pupils Leaving Regular Classes During the Feb.-June Term, 1911	(3) Number of Pupils of Each Age Leaving Regular Classes Not Accounted for in Column 1
18 and Over.....	104	165	61
17 to 18.....	636	994	358
16 to 17.....	3,884	6,265	2,381
15 to 16.....	18,086	22,657	4,571
14 to 15.....	42,163	48,475	6,312
13 to 14.....	63,369	65,496	2,127
12 to 13.....	66,806	68,649	1,843
11 to 12.....	70,155	72,110	1,955
10 to 11.....	68,864	70,957	2,093
9 to 10.....	67,860	70,024	2,164
8 to 9.....	70,934	73,359	2,425
7 to 8.....	66,652	69,167	2,515
6 to 7.....	51,707	53,847	2,140
5 to 6.....	6,358	6,408	50
Total.....	597,578	628,573	30,995

<sup>1</sup>Data for column (1) were taken from Table XXVII, p. 52, Annual Report of the City Superintendent of Schools for 1911.

<sup>2</sup>Data for column (2) were taken from the foregoing table and also from the reports made to the Committee on School Inquiry, June, 1911.

The number of pupils of each age given in column (1) is taken from the Annual Report of the City Superintendent of Schools for 1911. Excepting that the number of pupils of each age is given by totals instead of by sexes, this is his entire report on the ages of pupils in the elementary school. This report gives an idea of the number of pupils of each age on register at the end of the term, but gives no idea of the number of pupils of each age on register during the whole term. For this number one must turn to column (2).<sup>3</sup> A report on ages that has to do only with pupils on register at the end of the term is, therefore, a partial report, and, unless supplemented by the ages of all pupils on register during the term as a whole, is to an extent misleading.

What is true of the foregoing report of the City Superintendent of Schools is true of all of his reports, when made only in view of condi-

<sup>3</sup>Column (2) gives the number of pupils of each age on register during the February-June term, 1911, with the exception of pupils leaving school from special classes.

tions at the end of the term or at the end of the school year; they are incomplete and to an extent misleading. This is particularly true of the reports on promotion and on over-age.<sup>1</sup>

### 5. Reducing the Number Leaving School

There is no reason to assume that the fact that 30,995 pupils left the regular classes alone during the February-June term of 1911 is exceptional. There is every reason to believe that a similar number drop from school every term. Since, if pupils leave school prematurely, the very purpose for which the school exists is defeated, the problem of reducing the total number leaving and particularly of reducing the number leaving who are subject to the Compulsory Education Law demands immediate and earnest attention.

Though principals and teachers may be doing much to keep down the number leaving, so long as the reports of the several schools on pupils leaving and on the reasons therefor are not tabulated, it is impossible for District Superintendents, Associate Superintendents, and the City Superintendent to give the help in the solution of this problem that they should give. As a preliminary step in the reduction of school losses we, therefore, recommend that the reports from the several schools on pupils leaving and on the reasons therefor be collected and tabulated, term by term, for the Greater City, to the end that the number dropping from school and the reasons therefor may be known and that the causes of their leaving, in so far as these lie within the school, may be eradicated.

### 6. Conclusions

The foregoing discussion may be thus summarized:

(1) Thirty thousand nine hundred and ninety-five (30,995) pupils, or 5.17 per cent. of the total enrollment, in regular classes dropped from the elementary school during the February-June term, 1911; or one pupil out of each twenty in regular classes left school before the end of the term.

(2) Taking the several grades together, there was little difference between the losses among boys, 5.26 per cent., and the losses among girls, 5.07 per cent.—a difference of but .19 of 1 per cent. in favor of girls.

(3) The number of pupils leaving regular classes at each of the several ages from six to seven up to thirteen to fourteen, inclusive, was quite uniform, varying from 1,843 (12 to 13), to 2,515 (8 to 9), or from 5.95 per cent. to 8.11 per cent. of the total number leaving. The losses from fourteen to fifteen were the largest, 6,312, or 20.37 per cent. The number dropping out from fifteen to sixteen was likewise

<sup>1</sup> See Annual Report of the City Superintendent of Schools for 1911, Table XXVIII, p. 54, and Table XXXVII, pp. 66-67.



large, 4,571, or 14.75 per cent., as was also the number from sixteen to seventeen, 2,381, or 7.68 per cent.

(4) Of the 30,995 leaving regular classes during the February-June term, 1911, 15,944, or 51.44 per cent., were subject to the Compulsory Education Law.

(5) Because no account is taken of the number of pupils leaving school, certain of the reports of the City Superintendent of Schools are incomplete and, to an extent, misleading.

(6) The reduction of the number dropping from school and particularly the reduction of the number leaving who are subject to the Compulsory Education Law demand immediate and earnest attention.

(7) To the end that the number leaving and the reasons therefor may be known, and that the causes of their leaving, in so far as they lie within the school, may be eradicated, we recommend that the reports from the several schools on the number dropping out and the reasons therefor be collected and tabulated term by term for the Greater City.

### VIII.—Conclusions and Recommendations

A summary of conclusions and recommendations is given at the end of each of the several sections of the foregoing report. It will, therefore, be necessary to bring together certain of our conclusions and the more important of our recommendations only.

1. Among the chief causes of non-promotion assigned by the eight committees appointed in the fall of 1909 by the City Superintendent of Schools were Part-time, Excessive Size of Classes, Irregular Attendance, Late Entrance to School, Sluggish Mentality, and Ignorance of the English language.

Basing our conclusions on the rate of promotion at the end of the February-June term, 1911, we find, when each of these assigned causes is considered apart from the others:

- (a) That part-time and excessive size of classes are responsible for the non-promotion of relatively few pupils.
- (b) That irregular attendance is a decided factor in increasing the number of non-promotions.
- (c) That late entrance to school and sluggish mentality, as expressed in over-age, are material factors in causing non-promotion.
- (d) That inability to use the English language increases decidedly, in the relatively small group of pupils affected, the number of pupils failing promotion.

2. Considering the slightly lower rate of promotion at the end of the February-June term, 1911, for over-size classes, but more particularly the acknowledged educational disadvantages of over-size classes,

and the prevailing practice in other cities of the country, we recommend that whenever practicable all classes having more than fifty pupils be reduced to classes of forty-five pupils.

3. Basing our judgment on the decidedly lower rate of promotion at the end of the February-June term, 1911, for over-age pupils, and for pupils unable to use the English language, we recommend:

- (a) That classes in which special attention and direction are given to over-age pupils be provided at least for all pupils two and more years behind their grade.
- (b) That "C" classes—classes for the instruction of pupils unable to use the English language—be provided at least for all pupils in 1A classes unable to use the English language.

4. In this report certain of our conclusions and recommendations—for example, our recommendation to reduce all classes having above fifty pupils to forty-five pupils—do not rest so much on the facts presented as on educational opinion. Educational opinion, to have proper weight, should be supported by facts. To determine, on the basis of fact, the relative worth of whole-time and part-time classes, the proper size of class, and to answer, on the basis of fact, other questions raised in this report, such as the actual length of the present course of study, the actual length of time pupils are in school between six and fourteen, inclusive, etc., further data are needed. To collect some of the needed data it will be necessary to conduct special investigations; other data can be collected from the current and cumulative records of the schools.

Among the more important special investigations we recommend are investigations to determine:

- (a) The relative educational achievements of pupils in whole-time and part-time classes.
- (b) The relative educational worth of classes of each of the several sizes.
- (c) The proper limits of the period of elementary education.
- (d) The different groups of pupils of varying abilities and educational needs.
- (e) The extent to which pupils now in "E" classes are classified and instructed according as their over-age is due to late entrance or to slow progress—retardation.

The more important items of data we recommend to be collected, at least for a time, by terms from the current and cumulative records of the school are shown in the blank at the end of this report.

All the items called for in this blank are not now both matters of current and cumulative school record. The causes of absence due to late entrance, for example, are not now a part of the current record. Further, owing to the fact that the pupil's record card (a cumulative

record) was not introduced until June, 1909, it is impossible to give for all pupils now in school, who entered the 1A Grade, the date of entrance and the total number of days in school from entrance in the 1A Grade to June 28, 1912. These facts could be given only for pupils entering the 1A Grade in the February-June term, 1909, and thereafter. Similarly, with regard to pupils entering later than the 1A Grade. It is also impossible to give the total number of terms a pupil has been on part-time since entrance to school. But the current and cumulative records of the school are such, or can easily be made such, that all the items called for in the blank could, in due time, be supplied, and it is possible even now to supply the major part of them.

If the recommended blank is adopted and those data which can now be supplied are collected and tabulated, data will be at hand similar to those presented in this report, and additional data as follows:

(a) Data on the actual ages of children (Item 2), and these data, in connection with the data on grade (Item C) and on promotion and non-promotion (Items 11 and 12), will make possible for the first time an accurate estimate of the amount and degree of over-age in the entire system (exclusive of classes for the deaf, the blind, and classes for crippled and defective children).

(b) Data to show the amount of absence due to late entrance ("1" of "a" of Item 3). These data, together with data on absence due to irregular attendance ("b" of Item 3), will make it possible for the first time to determine the actual total amount of absence. Should teachers and principals be notified, at the beginning of a term, it would be possible at the end of the term to collect data on the causes of late entrance. With a knowledge of the causes of late entrance, it would be possible to determine to what extent such absence is due to home and other conditions, and to what extent it is due to failure to enforce the Compulsory Education Law.

(c) The data supplied on tardiness, conduct, and truancy (Items 4, 5, and 6), along with the data on absence (Item 3), will go far to substantiate or to disprove the prevalent belief that part-time has an unfavorable effect on the attendance, punctuality, and conduct of children.

(d) The data on pupils leaving school (Item 7), and the causes thereof (Item 8), will not only make it possible to make a complete report on register, absence, promotion, non-promotion, and over-age, etc., which is not now done but the knowledge of the causes of leaving might make it possible to reduce greatly the number dropping from school.

(e) Data will also be at hand (Item 14) to determine the number of beginners in the 1A grade, hence will supply the basis of estimating what portion of all pupils entering the school continue to the end of each grade.

(f) Data (Items 10, 11, and 12) to determine, with accuracy, the actual rate of promotion and of non-promotion, also the number of pupils receiving double promotion.

(g) Data (Item 13) to determine the actual length of time it takes pupils to complete each of the grades.

(h) Data (Items 14 and 15) to determine:

- (1) The actual total time pupils are in school between six and fourteen; also the total length of time they are in school.
- (2) The actual total length of the elementary school course of study, also the actual total length of time it takes to complete a given number of grades, e. g., the 1A-6B grades, inclusive.
- (3) The best age of entering the 1A grade, when judged solely in view of progress through the school.

Although it is impossible, as suggested above, to supply now the data called for in Items 14 and 15 for all pupils, the data that can be supplied now will answer for practical purposes.

(i) Should provision be made to collect the data called for in Item 16, some light will be thrown on the question whether part-time affects unfavorably the school progress of children.

(j) From Items 17 and 18, data will be at hand to determine whether the transfer of pupils from school to school affects unfavorably their advancement.

The blank is drawn so that the data called for can be tabulated by a general tabulating machine. This method of tabulation deprives teachers and principals of the value to be derived from tabulating the data for their own school, but it minimizes the work imposed on them, and makes possible a larger use of the data than when the reports of the several teachers are summarized on a principal's blank.

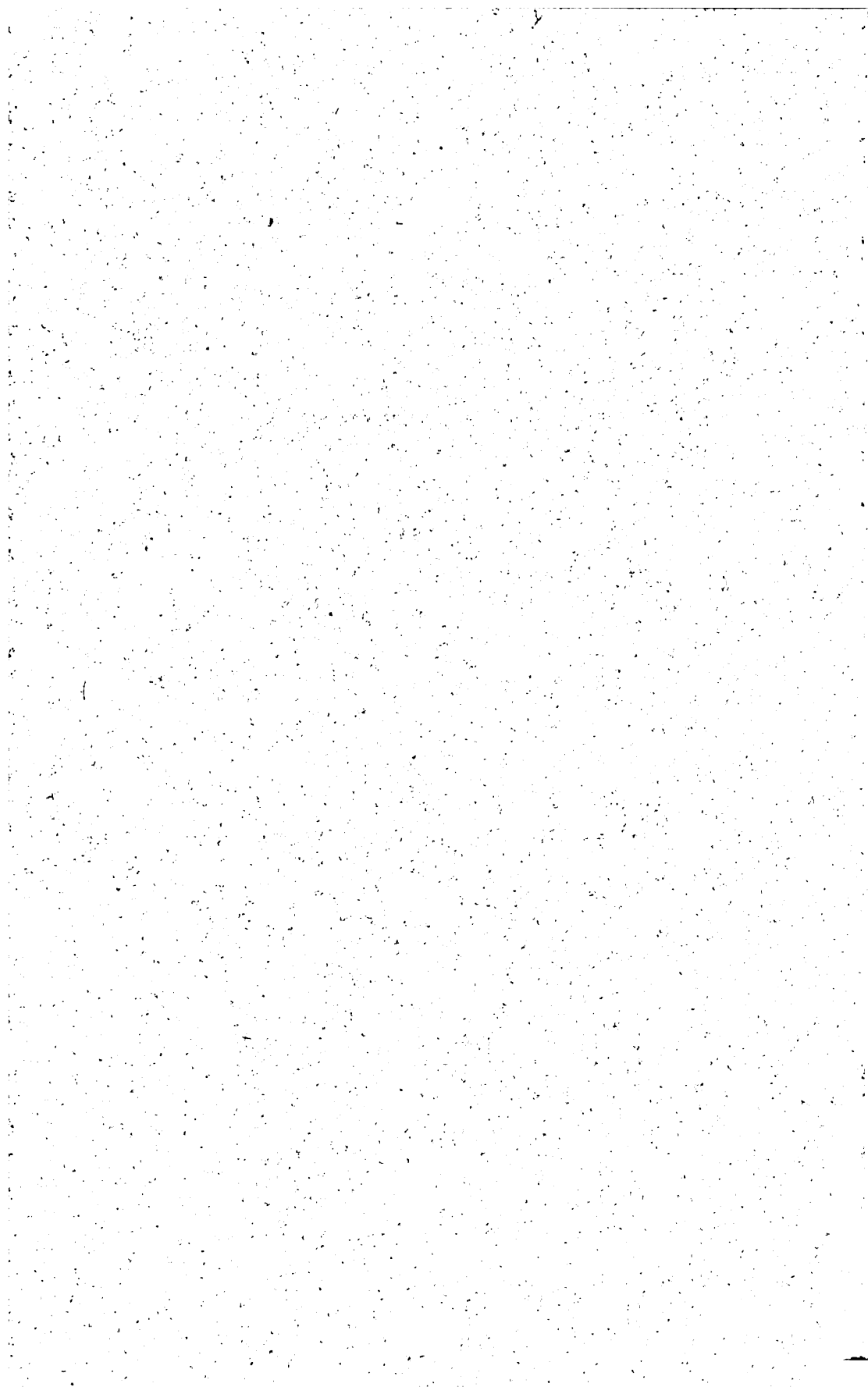
Should the data called for in this blank be collected, as we recommend, these data would not only supply a reliable basis for answering certain of the questions raised in this report, but would also supply currently a reliable basis for various kinds of administrative action in relation to them. Should data also be collected currently, as we would recommend, on deficiencies in the several studies of the curriculum, these would supply the basis of adjusting the qualitative and quantitative requirements of the course of study to the varying abilities and needs of different groups of children.

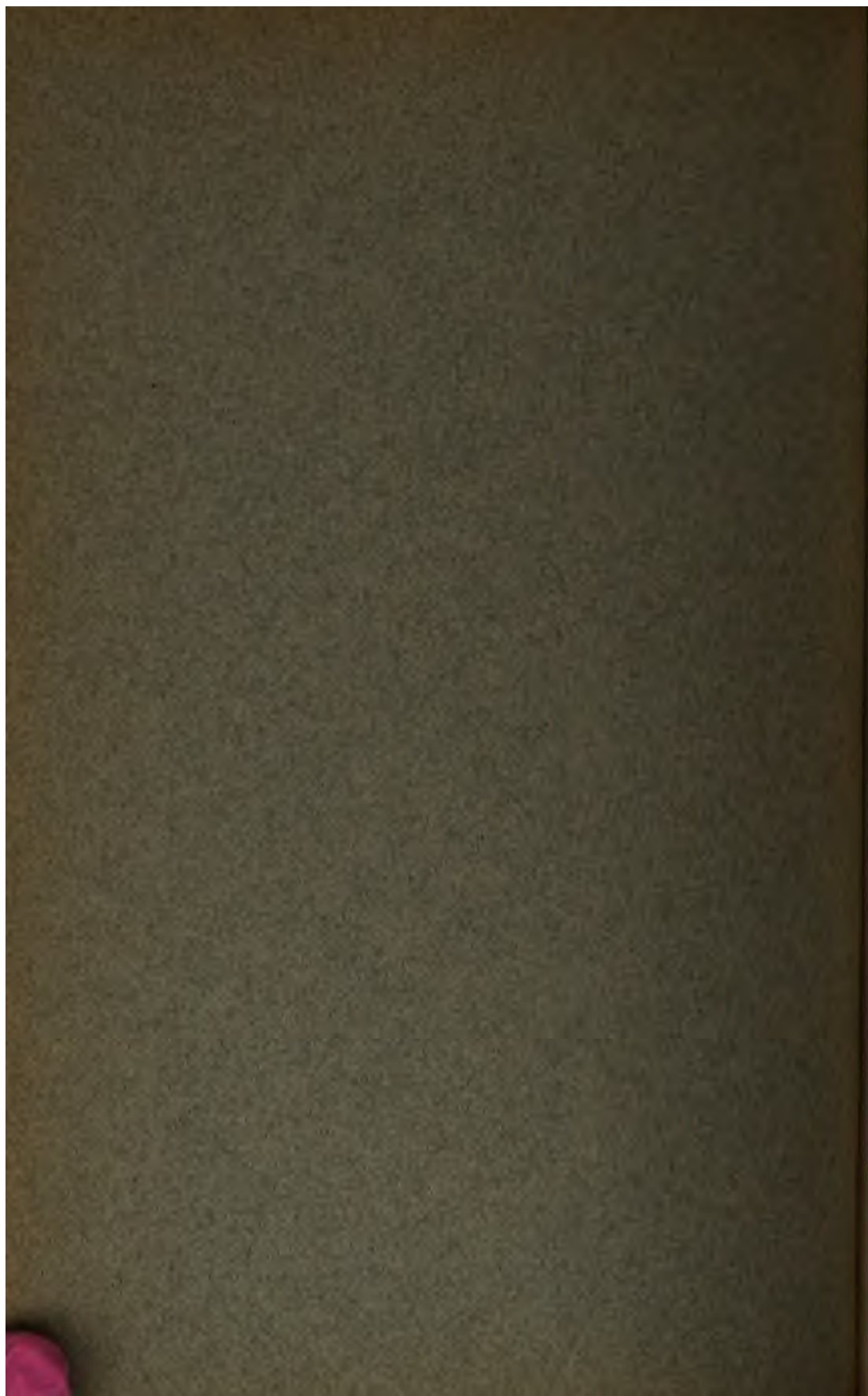
# TEACH

		15	8
Name Jan. give Room City From	1A AK	PUPILS EN- THE NEW PUBLIC SCH LATER TEA 1A GRA	
	from entrance to the 1A June 28, 1912	Grade of Entrance	Total Number of Days in
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
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33.			

Under "number" days lost after entrance to the 1A grade. 29. Classes absent the first two half days of the 18th and entering the 1A grade. (1) Pupil was in attendance on the date of entrance. (2) P. be the sum total of days in which he is registered the same way. (3) 4. Give actual number of days absent after an afternoon of the 18th. (4) 5. Under "number" of days. (5) 6. Indicate the number of days. (6) 7. Under "number" of days. (7) 8. Indicate the number of days. (8) 9. Indicate the number of days. (9) 10. Indicate the number of days. (10) 11. Indicate the number of days. (11) 12. Indicate the number of days. (12) 13. Indicate the number of days. (13) 14. Indicate the number of days. (14) 15. Indicate the number of days. (15) 16. Indicate the number of days. (16) 17. Indicate the number of days. (17) 18. Indicate the number of days. (18) 19. Indicate the number of days. (19) 20. Indicate the number of days. (20) 21. Indicate the number of days. (21) 22. Indicate the number of days. (22) 23. Indicate the number of days. (23) 24. Indicate the number of days. (24) 25. Indicate the number of days. (25) 26. Indicate the number of days. (26) 27. Indicate the number of days. (27) 28. Indicate the number of days. (28) 29. Indicate the number of days. (29) 30. Indicate the number of days. (30) 31. Indicate the number of days. (31) 32. Indicate the number of days. (32) 33. Indicate the number of days. (33)









## INTERIM REPORT

# Committee on School Inquiry Board of Estimate and Apportionment

### *Embracing*

1. Letter of Transmittal
2. Excerpt from "The Report as a Whole"
3. Report upon The Compulsory Attendance Service

By PROFESSOR PAUL H. HANUS

By DR. JESSE D. BURKS

Director of the Bureau of Municipal Research, Philadelphia, Pennsylvania

### *Committee on School Inquiry*

JOHN PURROY MITCHEL

*President of the Board of Aldermen*

WILLIAM A. PRENDERGAST

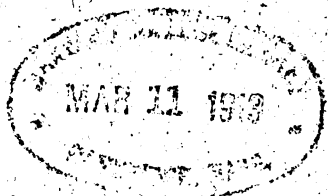
*Comptroller*

CYRUS C. MILLER

*President of the Borough of the Bronx*

CITY OF NEW YORK

1911-1912



Prof. P. H. Ransie,  
Cambridge

FEBRUARY 5, 1913.

*To the Honorable, The Board of Estimate and Apportionment:*

GENTLEMEN:—The Committee on School Inquiry herewith transmits to your Board a section of the report upon the educational aspects of the school inquiry, being a monograph by Dr. Jesse Burks, Director of the Bureau of Municipal Research of Philadelphia, Pa., upon "The Compulsory Attendance Service." Prefixed thereto is printed the section of "The Report as a Whole," prepared by Prof. Hanus, which deals with the subject matter of the accompanying monograph.

The monograph transmitted was first sent to the printer by Prof. Hanus in the form of manuscript on June 27, 1912, was transmitted by the printer to the writer and Prof. Hanus for revision on July 11, 1912. Since that time, the monograph has been undergoing revision by the writer and by Prof. Hanus and correction by the printer, and was received by your Committee, with the final approval of the writer and of Prof. Hanus, on January 8, 1913.

Respectfully submitted,

JOHN PURROY MITCHEL,  
*President Board of Aldermen.*

WM. A. PRENDERGAST,  
*Comptroller.*

CYRUS C. MILLER,  
*President, Borough of The Bronx.*  
Committee on School Inquiry.



EXCERPT FROM

## **"THE REPORT AS A WHOLE"**

BY

PROFESSOR PAUL H. HANUS

### **(7) The Compulsory Attendance Service**

The organization and work of the compulsory attendance service have been severely criticized since 1908, when the Associate Superintendent in charge of the service stated in his report that the "method of doing the work was grossly defective"; that "systematic and effective work is lacking"; and that "the results produced are not commensurate with the amount expended." Through the specialist who had been assigned by me to investigate and report on the compulsory attendance service, we made a preliminary report to your committee in October, 1911. The facts presented at that time, though admittedly incomplete, were important. These facts and others were from time to time submitted to the Associate Superintendent in charge of the compulsory attendance service, together with suggestions for the reorganization of the service. These facts and accompanying criticisms and constructive suggestions were utilized by the Associate Superintendent in formulating a plan of reorganization. This plan, with modifications, was accepted by the Committee on Special Schools. and later, on April 24, 1912, by the Board of Education.

Meanwhile, in his report for 1911, City Superintendent Maxwell recommended a sweeping change in the organization of the Compulsory Attendance Department, namely, that it should be removed from the special direction of the City Superintendent, that it should be placed under the general direction of the Permanent Census Board, and that it should be administered (subject to the general direction of that board) by the secretary of the Permanent Census Board. On the other hand, the reorganization adopted by the Board of Education proposed definite changes in methods of testing the efficiency of attendance officers and of inspecting their work.

Our original plan was to investigate the present organization and procedure of the compulsory attendance service, in order to ascertain where, if at all, inadequacy of results was due to organization and

## EDUCATIONAL INVESTIGATION

methods and to make suggestions for improvement. The action of the Board of Education referred to above makes the presentation of the details originally intended unnecessary, inasmuch as the proposed reorganization is an acknowledgment of defective organization and procedure. Accordingly, the purpose of such details as the report gives concerning present organization, methods, and results is primarily to support and facilitate the plan based, in part, on our facts and suggestions, and adopted by the Board of Education on April 24, 1912—the plan to which the school system is now committed.

We are in entire agreement with the proposal of the City Superintendent of Schools that the functions of the compulsory attendance service and of the Permanent Census Board be united in a single organization. We are convinced, however, that this organization should be responsible to the Board of Education and not to the Permanent Census Board—an independent organization. The investigation of causes of irregularity of attendance, delinquency, and unsatisfactory progress of school children; preventive treatment for minimizing or removing these causes; and disciplinary treatment for the application and enforcement of remedial measures, are integral and indispensable elements of educational administration. Hence such functions should not be isolated, or removed from the control of the Board of Education—the authority responsible for educational administration as a whole.

One important aspect of a satisfactory compulsory attendance service deserves special attention. The service, at present, limits itself unduly to the performance of police functions, aiming chiefly at the immediate explanation and checking of truancy and irregularity; rather than at the *prevention* of truancy and irregularity by attempting to discover and control their causes. Such control of truancy by police methods alone is quite inadequate and often inappropriate. The harmful effect of irregularity of attendance on the education of children was pointed out above in the discussions of promotions and non-promotions. The evil effect of irregularity and truancy on character and conduct during and outside of school hours is obvious. The prevention of irregularity and truancy by striking at their causes is therefore even more important than the attempt to cure them.

We accordingly recommend a reorganization of the compulsory attendance service and an enlargement of its program so as to include preventive as well as corrective and disciplinary treatment; and accompanying this reorganization, first, a complete revision of the system of records and reports as suggested in the report, so as to provide an adequate basis, now lacking, for administrative judgment and control; and second, a standardization of all routine functions.

To effect this reorganization and change of methods, we recommend further that an Attendance Bureau, responsible to the Board of Education, be constituted, and that this bureau have charge of all functions now discharged by the compulsory attendance service; the Permanent

## THE REPORT AS A WHOLE

Census Board; Public School No. 120, Manhattan; and the corps of visiting teachers now supported by the Public Education Association, or to be appointed by the Board of Education, if any; that administrative control of this bureau be completely vested in a chief responsible directly to the Superintendent of Schools; and that a district supervisor, directly responsible to the bureau chief, be appointed for each of the twenty-three districts into which the city is now divided; that district superintendents be relieved of all responsibility for the administration of the compulsory attendance service, except the conducting of judicial hearings in cases brought before them by supervising attendance officers; and that the staff of the bureau, in view of the functions to be discharged, be organized as follows:

A Division of Enumeration and Investigation—to maintain a correctly revised census list of all children of school age, and to make preliminary investigation of all cases referred to the Attendance Bureau, and report thereon.

A Division of Prevention and Probation—to make more exhaustive investigation of cases not disposed of through the first division to ascertain the causes of irregularity, and on the basis of a diagnosis of each case to suggest a plan of treatment which may require the coöperation of the parents, the teachers, and various voluntary agencies; and to act as probation officers.

A Division of Discipline and Prosecution—to deal with cases which have not yielded to the methods of the division of prevention and probation, and in which coercion may be necessary; and to prepare and prosecute all cases against parents and children for violation of compulsory attendance laws.

A Division of Correction—to maintain a day detention school in each of the twenty-three attendance districts, and the parental school or schools for the custodial care of children who cannot be satisfactorily dealt with in the day detention schools.





REPORT ON  
EDUCATIONAL ASPECTS OF THE  
PUBLIC SCHOOL SYSTEM

OF THE CITY OF NEW YORK

TO THE

COMMITTEE ON SCHOOL INQUIRY  
OF THE BOARD OF ESTIMATE  
AND APPORTIONMENT

PART II

*Subdivision I*

*Elementary Schools*

SECTION F.—PROBLEMS IN ELEMENTARY SCHOOL ORGANIZATION

IV. The Compulsory Attendance Service

BY

JESSE D. BURKS, PH.D.

Director Bureau of Municipal Research, Philadelphia, Pa.

CITY OF NEW YORK  
1911-1912



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## **(IV) THE COMPULSORY ATTENDANCE SERVICE**

### **Introduction**

#### **Preliminary Exhibits**

For the purpose of giving a concise preliminary view of the compulsory attendance service and its relation to other public and private agencies, there are presented here, in summary form, the following statements:

1. Official agencies concerned with the enforcement of the compulsory education law.
2. Organization and functions of the compulsory attendance service.
3. Data concerning the cost of maintenance and personnel of the compulsory attendance service.
4. Organization chart.

#### **Exhibit 1**

**Official agencies concerned with the enforcement of the compulsory education law:**

1. Permanent Census Board.
2. City Department of Health.
3. Compulsory Attendance Service.
4. Truant and Parental Schools.
5. State Department of Labor.
6. City Department of Police.
7. Children's Courts and Magistrates' Courts.

For a more detailed account of these agencies and their functions see Appendix 3.

#### **Exhibit 2**

##### **Organization and functions of the compulsory attendance service**

The general organization of the compulsory attendance service, together with the distribution of functions actually performed by the organization, are shown in the following analytical table and organization chart:

<i>Organization</i>	<i>Distribution of Functions</i>
Teachers and Principals	1. Maintenance of attendance records of pupils.
	2. Preliminary determination by principals and teachers of causes of pupils' absence.
Attendance Officers	3. Investigation of causes of absence in cases referred to attendance officers for investigation. <ol style="list-style-type: none"> <li>By principals of schools.</li> <li>By the central office (City Superintendent).</li> <li>By the Permanent Census Board.</li> <li>By the State Department of Labor.</li> <li>By other agencies and individuals.</li> </ol>
	4. Preventive treatment of truancy and irregular attendance. <ol style="list-style-type: none"> <li>Conference with parents, pupils, teachers, and principals.</li> <li>Return to school of pupils found to be absent without lawful excuse.</li> </ol>
	5. Disciplinary treatment of cases not satisfactorily dealt with by "argument and persuasion." <ol style="list-style-type: none"> <li>Arrest and place in school non-attendants and truants found on the street.</li> </ol>
District Superintendents	<ol style="list-style-type: none"> <li>Hear cases summoned on charges of habitual truancy and incorrigibility.</li> <li>Place truants and delinquent children on probation.</li> <li>Supervise children during the period of probation.</li> </ol>
Attendance Officers	<ol style="list-style-type: none"> <li>Prosecute parents responsible for the illegal absence of children.</li> </ol>
	6. Corrective treatment of delinquent children not otherwise dealt with satisfactorily. <ol style="list-style-type: none"> <li>Commit to parental and truant schools and other institutions (with the consent of parents) habitual truants and incorrigible pupils.</li> </ol>
City Superintendent of Schools	<ol style="list-style-type: none"> <li>Prosecute (in the courts) habitual truants and incorrigible pupils.</li> </ol>
Attendance Officers	<ol style="list-style-type: none"> <li>Parole children committed to parental and truant schools.</li> </ol>
City Superintendent of Schools	

<i>Organization</i>	<i>Distribution of Functions</i>
District Superintendents	d. Supervise children paroled.
Attendance Officers	7. Enforcement of the provisions of the child labor and newsboy laws.
City Superintendent	8. Administration and supervision.
Associate Superintendent	
District Superintendents	

**Exhibit 3**

**Data concerning the cost of maintenance and personnel of the compulsory attendance service:**

	1911 Budget	1912 Budget
Special Fund		
Maintenance, Manhattan Truant School..	\$5,360	\$5,240
Maintenance, Brooklyn Truant School....	8,230	8,230
Maintenance, New York Parental School.	15,600	15,300
General Supplies, Parental and Truant Schools .....	40,000	42,350
Apparatus, Machinery, etc.....	3,300	.....
Contingencies .....	2,256	2,250
Maintenance of Truants, N. Y. Catholic Protectory .....	10,000	14,040
Total Special Fund.....	\$84,746	\$87,410

	1911 Dis- tribution	1912 Distribution Based on 1st 4 Months
General Fund.		
Teaching Staff, Parental and Truant Schools .....	\$20,688.50	\$23,826.66
Attendance Officers .....	121,500.00	125,042.45
Total General Fund.....	\$142,168.50	\$148,869.11

The personnel of the compulsory attendance service is as follows:

- 1 Associate Superintendent.
  - 23 District Superintendents.
  - 94 Attendance Officers.
  - 19 Teachers in Truant and Parental Schools.
  - 31 General Employees, N. Y. Parental School.
  - 21 General Employees, Brooklyn Truant School.
  - 19 General Employees, Manhattan Truant School.
- The number of general employees is variable.

### Scope and method of the report

As originally planned, this report was to have consisted of three distinct parts: (1) a description of organization and procedure; (2) a statement of results showing where, if at all, inadequacy of results was due to deficiencies of methods, organization, and procedure; (3) constructive suggestions for correcting weak points.

Fortunately, recent action of the Board of Education makes it possible in formulating the report to emphasize constructive suggestions without the necessity of proving that modifications are needed to remedy existing defects. Therefore, so far as details are here given with respect to present organization, procedure, and results, their purpose is primarily to support and facilitate the plan for reorganizing the attendance service, which was adopted at the meeting of the Board of Education April 24, 1912.

In this connection the following facts are significant:

First, that annually since 1908 defects of organization and procedure have been the object of severe criticism in the reports of the Associate Superintendent in charge (Appendix 1).

Second, that, although these criticisms had been reiterated with a frankness seldom found in public documents, up to 1912 no serious attention seems to have been given to them or to the proposed reorganization, either by the Board of Education or by the City Superintendent.

Third, that in October, 1911, at the time of the hearing before the Board of Estimate and Apportionment on the 1912 budget of the Board of Education, the Committee on School Inquiry submitted a provisional report commenting on the same defects to which the Associate Superintendent had repeatedly called attention.

Fourth, that the results of the present inquiry into the compulsory attendance service were the subject of numerous conferences with the Associate Superintendent in charge. These results were, in part, incorporated in the specific plan for reorganization submitted by the Committee on Special Schools to the Board of Education and adopted with modifications on April 24, 1912. This plan, as finally adopted, provided: "That, in order to secure better results from the corps of Attendance Officers, the following changes be made:

"1. That a uniform system of records and procedure in the offices of the City Superintendent of Schools and of the District Superintendents respecting the enforcement of the compulsory education law be established.

"2. That daily reports be required from all attendance officers.

"3. That the printed rules for the government of attendance officers, adopted December 15, 1908, be revised and made more definite in conformity with the changes recommended herein.



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"4. That at least two of the corps of attendance officers be detailed to do work at large in connection with the enforcement of the compulsory education law.

"5. That the Committee on Special Schools be authorized to make a trial of a plan of special and daily supervision of the attendance officers in four contiguous districts to be designated by the committee, under such rules and regulations as the committee may prescribe."

An important difference should be noted between the recommendations made in the City Superintendent's report for 1911 (see Appendix 1) and the more recent proposals by the Committee on Special Schools. The former proposed to effect improvements in attendance work by transferring the function to the Permanent Census Board; while the latter proposed definite changes in methods of testing the efficiency of attendance officers and of supervising their work. It is to the need for these changes in methods of supervision and for efficiency tests, that the constructive suggestions and illustrative matter here presented chiefly relate.

Briefly summarized, the published criticisms of the Associate Superintendent, so far as they relate to the organization and administrative methods of the compulsory attendance service, are the following:

1. The organization of the compulsory attendance service places undue responsibility upon district superintendents for administration, and fails to provide for close field supervision.
2. The force of attendance officers is insufficient.
3. The method of doing work is grossly defective.
4. The system of records and reports is inadequate.
5. The number of day truant schools is not commensurate with the need.
6. The facilities of the parental school are inadequate.
7. The results accomplished have not been commensurate with the expenditures.

In order to furnish a fact basis for the proposed reorganization, detailed evidence is here presented concerning several classes of defects which have been found to interfere with the effective administration of the compulsory attendance service. This evidence, supplementing and reinforcing the general criticisms made by the Associate Superintendent, is classified under the following headings:

- I. Lack of administration standards.
- II. Inadequacy of subsidiary records and reports.
- III. Undue variation in the investigation and treatment of cases.
- IV. Delay in reporting.
- V. Inadequate basis for administrative control.
- VI. Defects of organization.
- VII. Undue emphasis of police functions.

To this evidence concerning defects are added a summary of constructive suggestions and three appendices:

- VIII. Suggestions for the development of a broader program.
- IX. Suggested reporting forms and classification of data.
- X. Suggestions for further study.
- XI. Appendices:

- 1. The recommendations of Superintendent Maxwell and of Associate Superintendent Shallow regarding the compulsory attendance service, as found in the published annual reports of the City Superintendent of Schools for the years 1907-1911.

- 2. An abstract of the chief requirements of the compulsory education law.

- 3. The distribution of functions among the official agencies having to do with the enforcement of the compulsory education law.

#### **I. Lack of administrative standards**

The most important available facts supporting the official criticism of administrative defects are those contained in the annual reports of district superintendents. These reports furnish the basis for the annual statistical report of the associate superintendent. They have never been published separately; nor, so far as ascertained, have they been utilized for comparative study of the methods and procedure of the several district superintendents as a basis for administrative control and standardization. Their sole use, apparently, has been to furnish data for the unanalyzed totals contained in the printed report of the city superintendent.

Twenty-five items from the 23 reports have been selected, reduced to comparable bases, and correlated in the six tables that follow. In this comparable form the facts furnish evidence of extraordinary variation in practice, which is completely hidden by the gross figures of the published report for 1910-11.

**Table I—Distribution of Attendance Officers and Their Field of Work**  
(The numbering of columns is to facilitate percentage comparisons)

Districts	District Superintendents	Attendance Officers	REGISTER—ALL CLASSES ELEMENTARY SCHOOLS EX- CLUSIVE OF KINDERGARTENS			REFERRED BY PUBLIC SCHOOLS			CASES INVESTIGATED, ALL SCHOOLS		
			Total	Per Attendance Officer	Number	Per Cent. of Register	Per Attendance Officer	Total	Per Attendance Officer	Total	Per Attendance Officer
1	2	3	4	5	6	7	8	9	10		
28, 30	Campbell	3	23,751	7,917	5,535	23.0	1,845	7,029	2,343		
4, 5	Chickering	2	27,389	13,694	1,711	6.0	855	3,317	1,658		
6, 7	Davis	3	30,583	10,194	3,755	12.2	1,251	6,221	2,073		
19, 22	Dwyer	4	27,006	6,751	4,258	15.7	1,064	6,493	1,623		
37, 38	Edsall	5	38,592	7,718	7,235	18.7	1,447	8,920	1,784		
45, 46	Ettinger	4	12,316	3,079	6,076	49.3	1,519	6,989	1,747		
32, 36	Franklin	3	30,228	10,076	4,958	15.4	1,652	6,075	2,025		
8, 12	Granger	4	20,397	5,099	5,494	26.9	1,373	8,708	2,177		
27, 29	Griffin	5	20,186	5,837	11,409	39.0	2,281	13,139	2,627		
13, 15	Hunt	3	21,119	7,039	4,096	19.3	1,365	5,399	1,799		
16, 17	Jameson	5	31,926	6,385	7,000	21.9	1,400	8,968	1,793		
20, 21	Lee	3	26,702	8,901	4,686	17.5	1,562	8,269	2,756		
31, 34	Lyons	5	27,267	5,453	6,557	24.0	1,311	8,445	1,689		
39, 40	McCabe	4	46,616	11,654	8,065	17.3	2,016	9,422	2,355		
10, 11	O'Shea	3	15,274	5,091	3,660	23.9	1,220	5,205	1,735		
2, 3	Richman	3	21,242	7,081	2,897	13.6	965	5,100	1,700		
14, 18	Schauffler	4	17,260	4,315	3,772	21.8	943	5,819	1,454		
23, 24	Shield	3	34,076	11,359	4,265	12.5	1,421	5,879	1,959		
43, 44	Shriner	4	24,393	6,098	5,632	23.0	1,408	6,762	1,690		
41, 42	Stewart	5	21,950	4,390	7,178	32.7	1,435	7,985	1,597		
33, 35	Strachan	4	31,039	7,759	6,078	19.5	1,519	7,808	1,952		
25, 26	Taylor	3	32,847	10,949	5,295	16.1	1,765	7,201	2,400		
1, 9	Wade	4	23,273	5,818	4,229	18.1	1,057	7,308	1,827		
City at large .....		86	614,433	7,144	131,050	21.3	1,541	174,919	2,034		



Table III—Children Summoned Before District Superintendents on the Charge of Truancy

Districts	CHILDREN SUMMONED		PLACED ON PROBATION IN SAME SCHOOL				PLACED ON PROBATION IN DIFFERENT SCHOOLS			
	Number	Per Cent. of Different Children Truant 5 Days or More	Number	Per Cent. of Those Summoned	Reported Satisfactory	Per Cent. Reported Satisfactory	Number	Per Cent. of Those Summoned	Reported Satisfactory	Per Cent. Reported Satisfactory
	21	22	23	24	25	26	27	28	29	30
		21:15		23:21		25:23		27:21		29:27
28, 30	89	27	68	76	63	92	5	5.6	4	80
4, 5	29	14	29	100	29	100	0	0.0	0	0
6, 7	74	45	52	70	50	96	13	17.5	12	92
19, 22	258	76	258	100	121	48	0	0.0	0	0
37, 38	274	148	203	74	167	82	14	5.1	7	50
45, 46	52	157	50	96	40	80	2	3.8	2	100
32, 36	153	91	149	97	137	91	4	2.6	3	75
8, 12	270	98	176	65	154	87	45	16.6	20	44
27, 29	219	76	195	89	127	65	5	2.2	0	0
13, 15	280	75	171	61	127	74	5	1.8	5	100
16, 17	476	70	428	89	286	66	12	0.4	...	...
20, 21	209	50	141	67	129	91	2	0.9	2	100
31, 34	187	97	121	64	107	88	23	12.3	15	65
39, 40	320	86	243	75	206	84	8	2.5	6	75
10, 11	391	111	324	82	211	65	16	4.0	15	93
2, 3	38	56	121	55	20	95	16	42.1	12	75
14, 18	147	30	122	82	92	75	6	4.0	6	100
23, 24	334	156	158	47	246	155	24	7.1	11	45
43, 44	114	35	106	92	85	80	8	7.0	4	50
41, 42	279	147	219	78	194	88	6	2.1	2	33
33, 35	232	167	158	67	125	79	36	15.4	36	100
25, 26	202	83	189	93	147	77	4	1.9	0	0
1, 9	232	63	226	97	189	83	6	2.5	5	83
City at large..	4,860	73	3,807	78	3,052	80	250	5.1	176	70

Table IV—Results of Probation

Districts	INDIVIDUALS PLACED ON PROBATION				UNSATISFACTORY PROBATIONERS COMMITTED TO TRUANT SCHOOLS	
	Number	Per Cent. of Those Summoned Before District Superintendents	Number on Probation Reported Unsatisfactory	Per Cent. on Probation Reported Unsatisfactory	Number	Per Cent.
	31	32	33	34	35	36
		31:21		33:31		35:33
28, 30	73	82.0	10	13.6	0	0.0
4, 5	29	100.0	0	0.0	2	....
6, 7	65	187.0	3	4.6	2	66.6
19, 22	258	100.0	59	22.8	5	8.4
37, 38	217	79.2	30	13.8	9	30.0
45, 46	52	100.0	2	3.8	1	50.0
32, 36	153	100.0	13	8.4	0	0.0
8, 12	221	81.0	21	9.5	17	80.9
27, 29	200	91.0	16	8.0	1	6.2
13, 15	176	62.0	44	25.0	3	6.8
16, 17	430	90.0	119	27.6	0	0.0
20, 21	143	68.0	14	9.7	9	64.2
31, 34	143	76.0	23	16.0	222	95.6
39, 40	151	47.0	24	15.8	24	100.0
10, 11	340	86.0	117	34.4	0	0.0
2, 3	37	97.0	4	10.8	1	25.0
14, 18	128	86.0	33	25.7	16	48.4
23, 24	182	54.0	18	9.8	15	83.3
43, 44	114	100.0	12	10.5	6	50.0
41, 42	225	80.0	63	28.0	1	1.6
33, 35	194	83.0	32	16.4	3	9.3
25, 26	193	95.0	37	19.1	4	10.8
1, 9	232	100.0	35	15.0	0	0.0
City at large.	4,057	83.0	729	17.9	132	18.1



Per Cent. of Different Children Truant 5 Days or More	Number	Per Cent. of Those Summoned	Reported Satisfactory	Per Cent. Reported Satisfactory	Number	Summoned	28	29	30
22	23	24	25	26	27	28	29	30	29:27
21:15		23:21		25:23		27:21			
27	68	76	63	92	5	5.6	4	80	
14	29	100	29	100	0	0.0	0	0	
45	52	70	50	96	13	17.5	12	92	
76	258	100	121	48	0	0.0	0	0	
148	203	74	167	82	14	5.1	7	50	
157	50	96	40	80	2	3.8	2	100	
91	149	97	137	91	4	2.6	3	75	
98	176	65	154	87	45	16.6	20	44	
76	195	89	127	65	5	2.2	0	0	
75	171	61	127	74	5	1.8	5	100	
70	428	89	286	66	12	0.4	2	100	
50	141	67	129	91	2	0.9	15	65	
97	121	64	107	88	23	12.3	6	75	
86	243	75	206	84	8	2.5	15	93	
111	324	82	211	65	16	4.0	12	75	
56	121	55	20	95	16	42.1	6	100	
30	122	82	92	75	6	4.0	11	45	
156	158	47	246	155	24	7.1	4	50	
35	106	92	85	80	8	7.0	2	33	
147	219	78	194	88	6	2.1	36	100	
167	158	67	125	79	36	15.4	0	0	
83	189	93	147	77	4	1.9	5	83	
63	226	97	189	83	6	2.5			
73	3,807	78	3,052	80	250	5.1	176	70	
4,860									

City at large..

Table VI—Prosecution of Children and Parents

Districts	CHILDREN TAKEN TO COURT		COMMITTED BY COURT		PARENTS ARRAIGNED BEFORE CITY MAGISTRATES				FOR EVERY 100 CASES OF PARENTAL NEGLECT	
	Number	Per Cent of Cases in Which Parents Refused Consent to Commitment	Number	Per Cent. of Children Arraigned	Number	Per Cent. of Cases of Parental Neglect	Number Fined	Per Cent. Fined	The Number of Children Taken to Court was	The Number of Parents Taken to Court was
	44	45	46	47	48	49	50	51	52	53
		44:42		46:44		48:40		50:48	44:37	48:37
28, 30	20	64	15	75	42	27.0	2	4.8	13.7	28.7
4, 5	3	100	3	100	98	25.0	0	0	3.25	106.5
6, 7	7	87	7	100	19	10.3	4	21.1	4.45	12.1
19, 22	47	41	31	65	8	5.7	0	0	58.0	9.9
37, 38	23	100	11	47	7	5.1	5	71.4	23.0	7.0
45, 46	9	42	2	22	29	17.5	5	17.2	36.0	116.0
32, 36	22	23	6	27	21	28.7	0	0	44.0	42.0
8, 12	36	100	26	72	20	21.5	2	10.0	65.0	36.4
27, 29	76	41	38	50	21	28.0	0	0	172.0	47.7
13, 15	63	39	41	65	30	10.3	2	6.7	27.2	13.2
16, 17	127	46	100	78	10	2.4	1	10.0	47.4	3.7
20, 21	34	45	27	79	30	8.2	6	20.0	12.9	11.4
31, 34	38	100	17	44	9	5.7	0	0	32.2	7.5
39, 40	32	66	18	56	65	5.1	10	15.4	59.2	120.0
10, 11	143	100	92	64	21	14.2	5	23.8	162.5	23.9
2, 3	1	100	1	100	106	35.6	7	6.6	.55	60.0
14, 18	1	16	1	100	19	3.5	6	31.6	23	4.4
23, 24	2	25	0	0	39	29.5	7	17.9	2.35	45.9
43, 44	22	84	12	54	38	17.1	7	18.4	13.2	22.7
41, 42	73	42	36	49	84	36.3	13	15.5	62.0	71.1
33, 35	40	30	19	49	30	16.0	4	13.3	65.6	49.2
25, 26	42	45	30	71	96	60.7	28	29.2	60.0	137.1
1, 9	47	21	36	76	47	46.6	12	25.5	75.8	75.8
City at large, . .	908	47	586	64	886	20.0	127	14.3	37.3	36.0

It will be noticed that, in addition to setting out separately the data for each supervisory attendance district, these comparative statements reduce each item to a percentage basis in order to afford a more ready means of comparison. The percentages have been calculated by selecting a "base" which seemed to offer the most significant point of reference and comparison for each of the items presented. A more significant basis might doubtless be selected in some instances if data were available. It is believed, however, that the calculations presented in the tables will clearly illustrate the usefulness of such a method of exhibiting the range of administrative practice and results.

The following summary of the foregoing tables indicates concisely the wide divergence in practice among district superintendents:

1. For every 100 children on register in elementary schools, the number of cases reported to attendance officers for investigation varies from 6 to 49
2. For every 100 cases reported to attendance officers for investigation, the number of "different reported cases of truancy" varies from..... 2 to 16
3. For every 100 "different reported cases of truancy" investigated by attendance officers, the number of such cases reinvestigated varies from ..... 11 to 280
4. For every 100 "different reported cases of truancy" investigated by attendance officers, the number of different children found truant five days or more varies from..... 15 to 100
5. For every 100 cases referred by public schools to attendance officers for investigation, the number of different children found truant five days or more varies from less than..... 1 to 10
6. For every 100 different children found truant five days or more, the number of times such children were returned to school varies from..... 100 to 400
7. For every 100 "different reported cases of truancy" investigated, the number of such cases probably due to parental neglect, varies from. 5 to 71
8. For every 100 different children found truant five days or more, the number of children summoned before the district superintendent on the charge of truancy varies from..... 14 to 167
9. For every 100 children summoned before the district superintendent on the charge of truancy, the number placed on probation in the same school varies from ..... 47 to 100

10.	For every 100 children placed on probation in the same school, the number reported satisfactory varies from .....	48 to	155
11.	For every 100 different children brought before district superintendents on the charge of truancy, the number placed in different schools varies from .....	0 to	42
12.	For every 100 children placed on probation in different schools, the number found satisfactory varies from .....	0 to	100
13.	For every 100 children placed on probation, the number reported unsatisfactory varies from..	0 to	34
14.	For every 100 children placed on probation and reported unsatisfactory, the number committed to the truant school by the City Superintendent varies from.....	0 to	100
15.	For every 100 children summoned before district superintendents on the charge of truancy, the number of parents who refused to sign consent for commitment varies from.....	2 to	95
16.	For every 100 parents who refused to sign consent for commitment of their children, the number of children taken to court varies from	16 to	100
17.	For every 100 children taken to court, the number committed by court varies from.....	0 to	100
18.	For every 100 cases attributed to parental neglect, the number of parents arraigned before city magistrates varies from.....	2 to	50
19.	For every 100 parents arraigned before city magistrates, the number fined or imprisoned varies from .....	0 to	71
20.	Of the total number of cases investigated in the several districts, the number per attendance officer varies from.....	1,454 to	2,756

Some of the variations shown in this comparison probably result naturally and necessarily from differences in local conditions. It is not to be expected, for example, that the proportion of registered pupils referred to attendance officers for investigation should be uniform throughout the greater city. Owing to the extremely wide variation in the figures, however, the conclusion is inevitable that differences in local conditions cannot fully account for the variations in administrative practice.

Is it credible, for example, that local conditions should make necessary in one district an average of almost three investigations for every case received by attendance officers, whereas in another district there

should be necessary only one-tenth as many reinvestigations as there were original investigations?

Can it be normal that in one district only 15 out of each 100 "reported cases of truancy" should be found to be those of "five-day" truants, if in another district the entire 100 are properly so reported; or that there should be ten times as many different truants in each 100 cases investigated in one district as in another?

If it is good practice in one district to summon only 15 out of each 100 truants before the superintendent for formal hearings, is it not questionable whether the practice of making 167 such summonses for the same number of truants in another district can be economical and effective? If good results in one district are obtained by placing on probation *all* of the pupils summoned before the district superintendent, does it seem likely that equally good results are to be obtained in another district by placing only 47 per cent. of the offenders on probation?

The fact that *all* of the children placed on probation in one district and reported unsatisfactory were committed to truant schools by the City Superintendent raises the question whether another district, in which *no* such children were committed to truant schools, has either something to learn from or something to teach the first district. If 98 per cent. of the parents in one district gave their consent to the commitment of their children brought before the district superintendent on the charge of truancy, it may be questioned whether local conditions in another district should make it impossible to obtain the consent of more than 5 per cent. of the parents.

If, by a proper preparation and prosecution of truancy cases in court, it is possible in one district to secure the commitment of all children taken to court, the question may be raised whether the failure in another district to secure the commitment of any truants prosecuted in court is due primarily to the indifference of the judges, or to a difference in procedure on the part of attendance officers.

If it is necessary in one district to prosecute one-half as many parents as there were reported cases of parental neglect, the question arises whether in another district it is advisable to prosecute only 2 per cent. as many parents as there were reported cases of neglect.

## II. Inadequacy of subsidiary records and reports

Obviously the reliability of the published summary report is measured by that of the twenty-three subsidiary reports of district superintendents which enter into it; and the reliability of these twenty-three reports in turn depends upon that of the subsidiary records and reports upon which they are based. An analysis of the entire system of records and reports is, therefore, necessary to determine the extent to which

the annual reports provide a sound basis for administrative judgment or for independent appraisal of the compulsory attendance service.

Most important among the primary records, upon which all summary statements depend, are the weekly reports of attendance officers and the original field records made by attendance officers in their current work. These will be examined in turn.

### 1. Defects in Weekly and Monthly Reports of Attendance Officers

In order to facilitate and clarify the consideration of the weekly and monthly reports, the first part of the reporting form is here reproduced.

The various items provided for in this form are poorly classified and loosely related. The arrangement does not permit ready examination and verification of totals. The captions are not, in many cases, clearly defined. The resultant information provided, accordingly, is not uniform or adequate for administration purposes. The results of an analysis of 25 of the reports actually submitted by attendance officers for the week ended June 5, 1911, well illustrate the consequences of employing a form of report which, by the ambiguity of its captions and the incoherence of its arrangement, gives license to laxity and uncertainty of interpretation and practice.

#### Item 1. *"Number of visits made during week."*

In fourteen of the twenty-five reports entries were found under sub-head (e), giving the number of visits to the office of the district superintendent; no entries whatever having been made here in the other eleven reports. A summary of this item at the end of the year, or a total into which such a summary enters, is accordingly open to doubtful interpretation. Assuming that one-half of the 94 attendance officers record "visits to district superintendents' offices" under this heading, the entire 6,961 visits "to other places" reported for 1910-11 may be thus accounted for. Without definition the item is not intelligible as a measure of service rendered.

#### Item 2. *"Number of cases received from following places during the week."*

The arrangement makes it difficult to distinguish between the "school number" and the "number of cases" received; and the lack of columnar form prevents ready addition and checking of figures. Two of the reports interpret the "total" of the last line in this item to include only the cases received from the district superintendent's office, the board of health, and "others"—the details on the same line with "totals." Two other reports have no entry in this space.

In thirteen of the reports headings for parochial schools were inserted by the attendance officers, and the number of cases from such

WILLIAM H. MAX  
City Superir  
Dear

at 5 p. m. Saturday...

1. No. of visits mad.





schools entered in detail. Ten others include cases from parochial schools in the total, but make no detail entries, appropriate space for parochial school cases not being provided.

Item 3. *"Total number of cases investigated this week."*

Only 23 of the 25 reports contain entries under this heading, though the other two have entries under "results of investigations." The entries in 14 of the reports agree exactly with the total under Item 2. Six gave a larger number of cases investigated than were referred, and two a smaller number. One of these includes the "pending cases referred this week" in the total of cases investigated. One report interprets the item to include only "cases investigated and reported to schools and offices this week."

Item 4. *"Results of investigation."*

- (a) "Illegally kept at home by parents.....  
Ret'd by me.....Total....."

Eight of the reports have no entries under this subheading. Three have entries for children kept at home. Eleven reports have the same number in each of the three spaces. In two reports the entries in the space for "total" are the sum of the number of children kept at home and the number returned; a combination which is obviously without any meaning. In one report an attendance officer who had found three children kept at home and had returned two of them, cautiously makes, in the space for "total," the non-committal entry 3-2. It is clear that a monthly or annual summary of this item is not open to accurate or intelligible interpretation.

- (b) "Returned by me, temporary legitimate absence."

Although no provision is made for a record of cases of temporary legitimate absence that are *not* returned by attendance officers, the number of cases under this heading exceeds that of any other group under "results of investigations." This fact raises a question as to whether an unduly large proportion of attendance officers' time is given to investigations which might be disposed of by a more effective method of preliminary inquiry by principals, teachers, and visiting teachers.

- (c) "Extreme poverty; not closed.....Ret'd.....Total....."

In one of the reports the same number is given in each of the three spaces, although it seems obvious that the total should include the other two entries.

- (f) "Found to be truants.....Boys....Girls....Total....."

The space immediately following "truants" is superfluous. In three of the reports entries are made in this space identical with the total.

- (h) "Moved.....Not found.....Total....."

There is uncertainty here as to whether the cases "not found" are to

be included in the cases reported "moved" or not. Four of the reports have entries under "not found" with none under "moved"; four have entries under "moved" with none under "not found"; five add the "moved" and "not found" cases to produce the total; one gives the same number under each of the three headings, and one gives the total only, without other entries. The remaining ten reports have no entries.

(i) "Working with employment certificates.....Without employment certificates.....Total....."

There is great confusion as to the relation of the cases included under this heading to those subsequently reported as "found employed contrary to law" (5a). Eighteen of the reports enter under "total" the number of children working with certificates, evidently assuming that those working without certificates are accounted for under the heading "employed contrary to law" (5a). One report gives under "total" the sum of those working with and without employment certificates. Conclusions based upon such data have questionable value as indices of actual conditions among employed children.

(m) "Total cases investigated by me and reported to schools and officers this week."

In only 14 of the 25 reports do the entries under this heading represent the sum of the preceding twelve items (a-l) under "results of investigations." Nineteen of the reports give the same number here as under "total number of cases investigated this week"; two make their entries agree with the "total number received from all sources"; and two give a number less than the "number received" (Item 2) and greater than the "number investigated" (Item 3).

(n) "Pending cases; referred this week....Referred formerly...."

Two reports give the same number of "pending cases referred this week" as were "reported to schools and officers." There is no agreement as to whether, among pending cases, are to be included: (1) children found employed contrary to law, but not returned to school; (2) cases of extreme poverty, not closed; (3) children moved and not found; (4) children reported as working without employment certificates; (5) cases not settled to date (Item 7); and (6) children summoned before district superintendents for hearings and not finally disposed of.

Item 5 (a). "*Number of children found employed contrary to law (Department of Labor took no part in these).*"

The relation of the entries under this heading to those under 4 (b)—"working without employment certificates"—is uncertain. Several district superintendents expressed the opinion that the cases under 5 (a) included those under 4 (b), but no way could be devised for verifying this opinion from the records. In three of the 25 reports there were entries under 4 (b) without entries under 5 (a). One obvious reason for this confusion is the fact that by reason of its typographical appearance the heading of the item has the form of a sub-head.

Item 6 (a). *"Number of non-attendants and truants found by me on street and placed in the following schools this week."*

This heading is interpreted in two distinct ways in the 25 reports. In fourteen, the entries indicate that all truants "found on the street" as well as those "placed in schools" and previously entered under 4 (f) are included. Only six of the reports interpret the heading to include *street cases only*, as shown by the fact that cases are reported under 4 (f) but not under 6 (a).

Evidently no completely valid conclusions as to conditions found and service rendered can be derived from the returns under a caption subject to such uncertain interpretation.

6 (c). "Total number of children summoned to court this week."

6 (d). "Number children committed to court this week on my complaint."

6 (e). "Number committed by City Superintendent this week on my complaint."

Placing these three subheads under Item 6 is misleading, as they evidently are not intended to refer exclusively to "children found employed contrary to law."

Item 7. *"Number of cases not settled to date."*

Five reports enter here the number of all cases pending—the same figure as 4 (n); two give the "pending cases referred this week"; four give figures that bear no apparent relation to the "pending cases" under 4 (n); and 14 contain no entry whatever.

Obviously the caption needs definition and, as it stands, furnishes no reliable basis for control.

On the second and third pages of the report-form are ruled spaces, in columnar form, for records of individual cases of (1) "children illegally absent from school"; (2) "arraignment of parents and others (adults) in court for violation of compulsory education law"; (3) "arraignment of children in court"; (4) "time spent in court"; and (5) "disbursements, carfares, etc."

Under the first general heading it is presumably intended that the facts concerning all children illegally absent should be entered. Apparently the practice is to enter the facts for non-attendants and truants only; for, of seventeen reports in which entries are made on the first page under "illegally kept at home" (4a), none give the data called for in the columns on the second page.

The lack of uniformity in reporting the data called for in this part of the form may be shown by a summary of the entries for 17 cases contained in the 25 reports examined. The column headings are given in the order in which they appear under "children illegally absent from school":

Column Headings	Entries	Column Headings	Entries
1 Date .....	11	9 Name of employer.....	..
2 Name of child.....	17	10 Nationality .....	6
3 Age .....	16	11 No. ....	9
4 Where from .....	13	12 Charge .....	6
5 Name of parent or guar- dian .....	16	13 Non-attendant .....	4
6 Residence .....	15	14 Truant .....	11
7 Employment of child... ..	..	15 Absentee .....	..
8 Place of employment... ..	..	16 Case closed .....	10
		17 Remarks .....	14

The rules and regulations for the government of attendance officers adopted by the Board of Education require that these officers "shall make their regular reports in triplicate, by the use of an indelible pencil and carbon sheets, on Saturday of each week to their superintendents, who may call for vouchers and other memoranda by which to verify the reports. The duplicate reports, when approved, with date, by the District Superintendents, shall be forwarded to the Associate Superintendent in charge. The triplicate report shall be kept by the officer, to be used in lieu of a record book. To the weekly report shall be attached a list of all pupils reported absent from school on account of neglect of parents or because of poverty, and of all pupils not found; also a weekly record of the attendance and conduct of all paroled truants in their respective districts. The lists shall be arranged by schools, and shall show name, age, grade, and last residence."

In practice the weekly and monthly reports of attendance officers are rendered on the printed form of four pages, the first page of which was reproduced on page 20. It will be seen at once that this form does not lend itself to use as required in the regulations. On account of typographical make-up, the entries cannot be made in triplicate by the use of carbon sheets. In practice two copies of the report are prepared independently, one copy being sent to the office of the Associate Superintendent, the other retained in the office of the District Superintendent.

## 2. Defects in Original Field Records of Attendance Officers

In reply to specific questions submitted, twenty of the twenty-three district superintendents furnished a detailed description of the original records maintained by attendance officers of each case investigated. The replies indicate no uniformity in requirements as to the method of recording and filing information regarding individual cases investigated. The items recorded are determined by the character of the forms used, which, as will be shown later, vary greatly.

The record form in most general use is the officers' note book, providing for the entry, in chronological order in each case, of *date; number; name; age; place; parent; nation; residence change; remarks.*

Besides this, in about one-half of the districts, officers make records on the cards subsequently described (page 30), which are used by principals in referring cases for investigation. Furthermore, entries are made in the "truant book" previously described, which is maintained in most districts. The entries are made in some cases by attendance officers in their own handwriting; in other cases by the principals' clerks.

The forms prescribed for weekly reports of attendance officers call for further repetition of entries in the cases of children found to be illegally absent from school and of children arraigned in court; and in cases of children found to be truant five days or more during one school term, the regulations for the government of attendance officers require that "a card list in duplicate" shall be prepared in January and June of each year.

It will thus appear that three complete records of every case investigated are, according to the regulations, to be maintained; a fourth record, in duplicate, in the weekly reports for all children illegally absent from school; and a fifth record, also in duplicate, in cases of five-day truants.

With all of this multiplication of records, no provision is made, so far as ascertained, in any of the districts for "alphabetical lists of all cases, so arranged as to permit of cumulative data under each name," as required by Section 5 of the regulations governing attendance officers.

So far as such cumulative records are lacking, it is practically impossible for attendance officers and district superintendents to deal with individual children in the light of past experience, except as the unaided memory or the oral statements of teachers, principals, or the children themselves may furnish the necessary information.

A "report on truants paroled from truant schools and institutions" is also provided for on the back of the weekly report form. Spaces are provided for a report on the attendance and conduct of paroled truants; specific requirement being made, in a printed note, that "inquiries must be made by the officers in person, at least once each week, at the school where paroled child attends, and date of inquiry recorded in last column." The question is here raised whether there is any real advantage in this prescribed method of direct inquiry at the school which could not be as well provided by a weekly report on each paroled truant mailed by the school principal to the attendance officer, with a request that the officer call at the school in cases where special discipline is considered necessary.

The form of the weekly report requires that the "date" be entered by the Attendance Officer at three different places; the "school district" at two places; and the "name of the attendance officer" at two places. The form is designed to be filed in document cases that require folding, rather than in cases for the more convenient and economical system of flat filing. The thickness of the paper used makes demands for an unnecessarily large amount of filing space.

### 3. Defects in Time and Service Records

The daily statement of time employed and service rendered by attendance officers, provided for on the back of the weekly report form, is inadequate to serve the purposes of administrative control for which it is apparently designed. The record of time employed calls merely for the time of beginning and of closing each day's work; no record whatever being required of unemployed time within these limits. No basis is furnished in such a record for judgment as to the distribution of an officer's time among the various types of service—visits to homes and schools, travel, street work, and unemployed time.

The daily service record is likewise too general to be of great value in supervision, the only details called for being "*number of visits made,*" "*number of cases closed,*" "*number of truants returned to school,*" and "*number of non-attendants placed in school.*"

### III. Lack of Uniformity in Procedure and in Presentation of Results

In the foregoing discussion it has been shown that the weekly, monthly, and annual reports prepared by the various officers, by reason of their incompleteness, inaccuracy, and lack of uniformity, fail to provide an adequate basis for judgment concerning the methods employed and results accomplished in the service. Without reliable and complete information as a guide to practice, it is only natural to expect that the methods and procedure in current work will vary as widely as the opinions, interests, and efficiency of the personnel of the compulsory attendance service.

The results of the present inquiry fully confirm this natural expectation. The investigation shows that few specific problems of administration are met in a uniform way by district superintendents. In such matters as the supervision of attendance officers, the prevention of truancy and irregular attendance, conduct of hearings, placing of pupils on probation in the same or different schools, enlisting the support of teachers, principals and charitable societies, supervision of pupils placed on probation, recommendation for commitment, prosecution of parents and children, and interpretation of the official regulations, each district superintendent is left to the guidance of his own limited experience, and to such suggestion as he may receive incidentally from professional colleagues.

### Investigation and Treatment of Cases

In order to ascertain the extent to which there is agreement or disagreement among district superintendents, as to methods prescribed for the ordinary current handling of cases of irregular attendance, tru-

ancy, and other forms of delinquency, the 23 district superintendents were requested to make statements in answer to a series of questions submitted to them.

Twenty of the district superintendents submitted replies which have been digested and summarized as a statement of prescribed practice. On certain points involved supplementary data have been obtained from the records of attendance officers and district superintendents, to serve as a test of the extent to which prescribed practice is actually followed.

Much of the matter included under this heading might appropriately have been included in the preceding discussion of subsidiary records and reports. It is desirable, however, to bring together at one point all the material having to do with the procedure of principals and attendance officers in the actual work of investigation and treatment of cases.

Summaries, with supplementary data, are here presented, under the successive headings contained in the questionnaire:

### 1. Preliminary investigation by principals.

*Question.—What specific instructions have principals regarding the investigation of cause of absence before referring a case to attendance officers?*

Instructions to Principals	Number of Districts
Careful investigation of every case.....	1
Inquiry among pupils, brothers, and sisters.....	4
Inquiry in school assembly.....	1
Regular teacher to make visits.....	4
Visiting teacher to make investigation.....	1
Communication to parent by messenger or letter..	3
Letter with stamped envelope to be used when advisable .....	1
Refer cases to medical inspector.....	1
Notify attendance officers at once in cases of strongly suspected truancy.....	2
(In a few cases principals are said to employ "truant squads" composed of older boys, to locate pupils suspected of truancy.)	

It is immediately apparent from these replies that there are no general, clearly defined standards of procedure for conducting preliminary investigations. The use of two post-card forms, however, seems to be somewhat general. The first of these, the "absence card," requests the parent to give the cause of absence and return the card; no return card, however, being supplied. The second or "law" card contains an extract from the compulsory education law; notifies the parent that his child is not attending school as the law requires; and requests that the matter receive immediate attention. There is little agreement among the su-

perintendents in the method of using these cards, as a summary of the replies shows:

Days Elapsing Before Cards Are Sent.	No. of Districts.
First day .....	3
Second day .....	2
Third day .....	2
No regular time .....	13

#### Number of Cards Sent

One card .....	4
Two cards .....	5
Three cards .....	5
Not stated .....	6

In case no satisfactory explanation of absence is received from the parent in response to these cards of inquiry, the case is referred to an attendance officer for investigation. The following tabulation of 1,315 cases, chosen at random from the reports of six attendance officers, shows the variation in the period of absence which is allowed to accumulate before cases are so referred.

**Table VII—Length of Absence Before Cases Were Referred to Attendance Officers**

(Analysis of 1,315 Original Entries)

District	Attendance Officer	Total No. Cases	DISTRIBUTION OF CASES BY LENGTH OF ABSENCE									
			NUMBER OF CASES					PER CENT. OF CASES				
			1-5 days	6-10 days	11-15 days	16 days and over	No data	1-5 days	6-10 days	11-15 days	16 days and over	No data
2-3	G	280	166	76	14	16	8	59.	27.	5.	5.	2.9
10-11	M	219	111	62	18	21	7	50.	28.	8.	9.	3.2
1-9	C	206	59	68	28	40	11	28.	33.	13.	19.	5.3
6-7	A	270	35	52	31	105	47	12.	19.	11.	38.	17.4
4-5	J	114	18	23	19	50	4	15.	20.	16.	43.	3.5
31-34	B	226	88	45	12	44	37	38.	19.	5.	18.	16.4
Total.....		1,315	477	326	122	276	114	36.	24.	9.	20.	8.6

Besides the fact of very wide variation in practice shown in this table, it will be noted that in 114 (8.6 per cent.) of the cases there were no data available by which the length of absence at the time of reference could be determined.



Of the 1,315 cases included in the foregoing table, 395 were reported by attendance officers as having been absent without lawful excuse. As these are presumably the more serious and difficult cases, they have been tabulated separately, with a view to ascertaining the periods of absence that were allowed to accumulate before the cases were referred to attendance officers for investigation.

**Table VIII—Length of Absence Before Cases Were Referred to Attendance Officers**

(Analysis of 395 Cases of Absence Without Lawful Excuse)

District	Attendance Officer	Total No. Cases	DISTRIBUTION OF CASES BY LENGTH OF ABSENCE									
			NUMBER OF CASES					PER CENT. OF CASES				
			1-5 days	6-10 days	11-15 days	16 days and over	No data	1-5 days	6-10 days	11-15 days	16 days and over	No data
2-3	G	105	81	13	4	5	2	77.	12.	3.8	4.8	1.9
10-11	M	69	42	15	4	5	3	60.	21.	5.8	7.2	4.4
1-9	C	69	25	22	6	12	4	36.	31.	8.7	17.4	5.8
6-7	A	60	15	18	8	18	1	25.	30.	13.3	30.0	1.7
4-5	J	36	9	8	6	13	0	25.	22.	16.7	36.1	...
31-34	B	56	25	7	3	12	9	44.	12.	5.4	21.4	16.1
Total.....		395	197	83	31	65	19	49.	21.	7.8	16.4	4.8

It will be noted in this table that in about 25 per cent. of the cases a period of absence exceeding ten days was allowed to accumulate before the cases were referred to attendance officers, and that in about five per cent. of the cases no record appears of the length of absence at the time the cases were referred. As in the preceding table, the wide variation among these six attendance officers is a matter for serious consideration.

## 2. Information given by principals in referring cases.

*Question.—What information is a principal required to give in referring a case to an attendance officer?*

A certain measure of uniformity is given to this requirement by reason of the fact that one of three blank forms is almost invariably used. Very generally, in boroughs other than Brooklyn, a form is in use which requires the principal to enter on a separate card for each case the *name, age, grade, street number and floor, date, and school number*, with spaces for "*card number*" and "*remarks*." In the central part of this card form are four blank lines for the officer's report with date and signature. At

the bottom are spaces for date of pupil's return and the principal's signature.

This card is approximately 3 by 5 inches in size, but is cut slightly larger than the standard filing card of similar dimensions. Consequently it cannot readily be filed in standard filing cases, and is a source of constant annoyance. The card is of unnecessarily heavy weight, which makes requirement for a larger amount of filing space than would be required by lighter stock. No provision is made for the use of a code of abbreviated symbols or check marks in making the entries. The required data must, therefore, be written out in full, with resulting loss of time in clerical labor. The small space allowed for the attendance officer's report, furthermore, encourages fragmentary and unintelligible entries, such as "will return," "not there," "unavoidable reasons," "detained at home," etc.

In one superintendent's districts (6 and 7) in Manhattan, a modification of this form has been introduced by the district superintendent which permits principals to make duplicate records at one writing by the carbon process. This form calls for "dates of absence" instead of "number of days absent," as on the regular form furnished by the central office. No provision, however, is made for the signature either of the principal or of the attendance officer, an omission which leaves the way open to careless and confusing practice. The carbon duplicate in this district is retained by the principal as a controlling record, the original being given to the attendance officer as a notification.

Somewhat generally in Brooklyn districts there is in use a form printed on postal cards providing for ten cases on each card with entries in columns headed, *name of child; age; name of parent or guardian; residence; number of days absent*. Spaces are provided for entering absence or previous record, or for entries by the attendance officers of date, the principal's signature, and the school number. The spaces on the form are so small that the names and residences are either cramped or incomplete. There is no provision for information as to causes of absence or of the results of investigation.

All of these forms limit the information furnished by principals to the most obvious and superficial facts regarding each child. Nothing, for example, is contemplated in the forms as to the scholarship, conduct, general attitude, previous record for attendance, and other conditions surrounding each case which might furnish attendance officers with the clues necessary to the intelligent understanding and treatment of the children. In several cases, where apparently the regular forms were not available, it was found that slips of paper and blank cards had been used in large numbers by principals, and a part of even the meager information called for by the printed forms was lacking.

### 3. Record maintained by principals concerning cases referred.

*Question.—What record is a principal required to keep in his own office regarding each case referred?*

"Elementary school record number 4," otherwise known as the "truant book" or "day book," is in general use for this purpose. This is in conformity with Section 3 of the by-laws of the Board of Education, which requires that "the principal of every school shall keep a record, in a register provided for that purpose, of all children of school age who have been reported to the attendance officer, together with an accurate record of the disposition of each."

This record requires the duplication of essentially the same entries that are made on the cards sent to attendance officers, and of the reports made by Attendance Officers upon the results of investigations. This unnecessary repetition of records is carried still further in the records that attendance officers are required to keep in their "note books" and in special files of card forms for certain types of cases.

### 4. Methods employed in referring cases for investigation.

*Question.—Which of the following methods are followed by principals in referring cases for investigation?*

- (1a) Written notice.
- (1b) Oral notice.
- (2a) Notice by mail.
- (2b) Notice by direct interview.
- (3a) Direct to attendance officers.
- (3b) Direct to district superintendent.

Six different combinations are reported in the replies. Five use written notice by mail to the attendance officer; 4 use oral and written notice to the attendance officer; 2 use written notice direct to the district superintendent; 1 uses oral and written notice to the district superintendent; 2 use written notice to both district superintendent and attendance officer; 6 use both oral and written notice to either attendance officer or District Superintendent.

### 5. Times at which cases may be referred.

*Question.—Are special times designated at which principals are to refer cases for investigation?*

Here again there are marked differences in practice. Four refer cases weekly; 4 refer cases weekly or oftener; 2 refer cases bi-weekly; 2 refer cases bi-weekly and urgent cases oftener; 2 refer cases at the regular visit of the attendance officer to the school, and urgent cases oftener; 6 refer cases at no special time.

**6. Means for informing principals as to the results of investigations.**

*Question.—By what means is a principal informed concerning the results of each investigation?*

The means employed are reported as follows by the district superintendents: Five districts use written reports on cards; 3 districts use written reports; 2 districts use reports in the record book (one of these requires entries to be in officer's own handwriting); 2 districts use written report and oral statement; 4 districts use "reports," not designating the kind; 1 district uses alternative methods, as follows: Pupil brings card from attendance officer; written report on list returned by mail; list presented personally by officers; oral report by officers to principal.

**7. Method of reporting the return of truants and absentees.**

*Question.—How does a principal report upon a truant or absentee returned to school?*

The twenty replies show the following variations among the districts: Ten use written reports on cards; 3 use written reports on cards or oral report; 1 uses written reports on cards and an entry in book; 1 uses oral and written reports; 2 use "reports to attendance officer"; 1 requires the attendance officer to examine the truant book; 1 reports to the attendance officer at the end of each month all children absent 15 days during the month; 1 does not state the method employed.

In those districts where the card form for individual cases is used by principals in referring cases to attendance officers, the usual practice is for the attendance officers to report back to the principal on the same form upon the return of the child to school, and for the principal to enter upon this card the date of the child's return with his own signature and to return it to the attendance officer.

In districts using the postal card form for referring cases to attendance officers, a so-called "voucher" is used by principals in notifying the attendance officer of the return of children to school. This voucher form is a card providing space for several names, with the *age, name of parent or guardian, residence, and number of days' absence* of each child reported. The filling out of this card occasions further multiplication of clerical entries, which could easily be avoided by a proper system of duplication by carbon process.

**8. Distribution of cases among Attendance Officers.**

*Question.—On what basis are cases distributed among Attendance Officers?*

The general practice is to assign all cases from designated schools to a single attendance officer, the only exception being one district, which distributes cases on the basis of sex. Most of the replies indicate a plan of distributing cases equitably by "size of schools and territory,"

by "school population," by "difficulty of work," by "number of cases," etc. On this point, however, the replies are not sufficiently specific to be summarized briefly.

#### IV. Delay in Reporting

In the questionnaire submitted to the district superintendents information was requested concerning the length of time that is allowed after a case was referred to an attendance officer before the officer is required to make his report. Most of the replies indicate a definite time allowance for investigation and report, varying from one day to one week. The requirements given in the replies are as follows:

Number of Districts	Time Within Which Reports Are Required
9	1 week
1	5 days
4	2 or 3 days
1	No set time; average less than 3 days
1	If possible, within 48 hours
1	On completion of investigation, usually same day
2	Promptly
1	As soon as possible

In order to test the actual practice regarding the length of the period between the time when cases are referred by school principals and the time when reports are rendered by attendance officers, an analysis was made of the original records of 1,315 cases investigated by six attendance officers, both the officers and the cases being chosen entirely at random. To facilitate comparison, the results of this analysis are presented in the following double table, the number of cases being distributed at the left, and the percentages at the right:

**Table IX—Length of Interval Between Reference of Case and Attendance Officers' Reports**  
(Analysis of 1,315 Original Entries)

District	Attendance Officer	Total No. Cases	DISTRIBUTION OF CASES BY LENGTH OF INTERVALS									
			NUMBER OF CASES					PER CENT. OF CASES				
			1-5 days	6-10 days	11-15 days	16 days and over	No data	1-5 days	6-10 days	11-15 days	16 days and over	No data
2-3	G	280	254	8	4	1	13	90.	2.9	1.4	.4	4.6
10-11	M	219	197	9	1	1	11	90.	4.1	.5	.4	5.0
1-9	C	206	138	31	4	1	32	67.	15.1	1.9	.5	15.5
6-7	A	270	67	96	86	...	21	24.	35.6	31.8	...	7.8
4-5	J	114	28	12	3	10	61	24.	10.5	2.6	8.8	53.5
31-34	B	226	224	1	...	...	1	99.	.5	...	...	.5
Total.....		1,315	908	157	98	13	139	69.	11.1	7.4	.9	10.5

The administrative weakness of permitting district superintendents and individual attendance officers to follow their own standards is strikingly illustrated by the percentages in this table. One officer reports 99 per cent. of his cases within five days, while two others report only 24 per cent. within the same period. The unreasonably long delays in certain districts suggest the need for daily reports and strict field supervision, as provided for in the plan recently adopted for trial in four districts on the recommendations of the Committee on Special Schools.

Not only is this wide variation true of the total number of cases selected for study, but it is found also in the cases of pupils absent without lawful excuse. The tabulation of these 395 special cases follows:

**Table X—Length of Interval Between Reference of Cases and Attendance Officers' Reports**

(Analysis of 395 Cases of Pupils Absent Without Lawful Excuse)

District	Attendance Officer	Total No. Cases	DISTRIBUTION OF CASES BY LENGTH OF INTERVALS									
			NUMBER OF CASES					PER CENT. OF CASES				
			1-5 days	6-10 days	11-15 days	16 days and over	No data	1-5 days	6-10 days	11-15 days	16 days and over	No data
2-3	G	105	94	2	2	...	7	89.5	1.9	1.9	...	6.7
10-11	M	69	66	1	...	...	2	95.7	1.5	...	...	2.8
1-9	C	69	47	13	...	...	9	68.1	18.9	...	...	13.0
6-7	A	60	12	18	29	...	1	20.0	30.0	48.3	...	1.7
4-5	J	36	11	1	...	3	21	30.6	2.8	...	8.3	58.3
31-34	B	56	55	...	...	...	1	98.2	...	...	...	1.8
Total.....		395	285	45	31	3	41	72.1	11.3	7.8	0.7	10.3

Tables XI and XII show a similar variation in the length of time taken by attendance officers for final settlement of cases referred to them. These tables again emphasize the importance of developing effective methods of supervision and control over the current work of attendance officers. Properly utilized daily reports upon preliminary investigations and upon final disposition of cases would certainly go far toward facilitating such control.

**Table XI—Length of Interval Between Reference of Cases and Final Disposition of Them**  
(Analysis of 1,315 Original Entries)

District	Attendance Officer	Total No. Cases	DISTRIBUTION OF CASES BY LENGTH OF INTERVALS									
			NUMBER OF CASES					PER CENT. OF CASES				
			1-5 days	6-10 days	11-15 days	16 days and over	No data	1-5 days	6-10 days	11-15 days	16 days and over	No data
2-3	G	280	157	42	19	45	17	56.	15.	6.	16.	6.
10-11	M	219	88	43	21	43	24	40.	19.	9.	19.	11.
1-9	C	206	76	40	34	30	26	36.	19.	16.	14.	12.
6-7	A	270	34	34	12	7	183	12.	12.	4.	2.	67.
4-5	J	114	33	8	10	30	33	29.	7.	8.	26.	28.
31-34	B	226	...	...	...	...	226	...	...	...	...	100.
Total.....		1,315	388	167	96	155	509	29.5	12.7	7.3	11.7	38.7

The figures under "no data available" in the preceding tables indicate either defective methods of investigation or laxity of supervision which must seriously interfere with the efficiency of the service. In two instances, it will be noted, about 17 per cent. of the records fail to show the length of absence at the time cases are referred to attendance officers (Table VII). In another instance an officer fails in over one-half of his cases to give data from which can be determined the length of time intervening between the reference of cases and the officer's report upon his investigation (Table IX). One officer gives no data in any of his cases from which a supervising officer can determine the length of time between the reference of a case and the final disposition of it (Table XI).

**Table XII—Length of Interval Between Reference of Cases and Final Disposition of Them**  
(Analysis of 395 Cases of Pupils Absent Without Lawful Excuse)

District	Attendance Officer	Total No. Cases	DISTRIBUTION OF CASES BY LENGTH OF INTERVALS									
			NUMBER OF CASES					PER CENT. OF CASES				
			1-5 days	6-10 days	11-15 days	16 days and over	No data	1-5 days	6-10 days	11-15 days	16 days and over	No data
2-3	G	105	73	13	5	11	3	69.	12.	4.	10.	2.
10-11	M	69	35	14	5	10	5	50.	20.	7.	14.	7.
1-9	C	69	29	15	9	13	3	42.	21.	13.	18.	4.
6-7	A	60	19	17	9	7	8	31.	28.	15.	11.	13.
4-5	J	36	13	2	3	6	12	36.	5.	8.	16.	33.
31-34	B	56	...	...	...	...	56	...	...	...	...	100.
Total.....		395	169	61	31	47	87	42.7	15.3	7.8	11.9	22.

## **V. Inadequate Basis for Administrative Control**

Responsibility for the enforcement of the compulsory education law, as we have seen, rests jointly upon the Superintendent of Schools, the Board of Superintendents, and the Associate Superintendent assigned to the compulsory attendance service. Although these officers may be able occasionally to study individual problems at first hand for administrative purposes, they must necessarily depend in the main upon periodical reports giving classified and digested information, summarizing the various activities of the compulsory attendance service. Upon this kind of material they must base their judgment concerning work undertaken, results accomplished, losses incurred, needs to be met, tendencies to be checked, and proposals to be approved or rejected. It is apparent, therefore, that, just so far as these reports are accurate and complete or as they are misleading and fragmentary, the basis for administrative judgment and control will be broad and stable or partial and unsound.

### **1. Administrative Importance of the Annual Report**

The most important source of information for administrative officials is the annual report submitted by the Associate Superintendent to the City Superintendent of Schools. It not only furnishes the basis for official appraisal and forecast and serves as the working guide for administrative officers but is the most significant report of progress available for the information of supervisory officers, for the rank and file of employees in the service and for citizens, tax payers, teachers, and parents who are interested in the effective and economical management of this branch of the educational system.

In the main, the annual report consists of a summary statistical statement obtained through combining by addition the records of the 23 district superintendents. Upon these figures the Associate Superintendent bases his comments, interpretation and recommendations regarding the work over which he has administrative control.

This annual statistical summary is presented in five sections under the following headings:

1. Work of attendance officers in compelling attendance. Commitments to truant schools and paroles therefrom.
2. Arraignment of delinquent pupils before district superintendents. Probation work and results.
3. Enforcement of compulsory education law by courts.
4. Cases of violation of both the labor law and the compulsory education law.
5. Action of children's courts.

The first section of the summary is here reproduced as a basis for criticism and suggestion.



**Work of Attendance Officers in Compelling Attendance Upon Public and Private Day Schools, and Public Evening Schools. Commitments to Truant Schools, and Paroles Therefrom by the City Superintendent of Schools**

	1909-10	1910-11		
		Boys	Girls	Total
<b>1. Whole number of cases referred to attendance officers for investigation:</b>				
(a) By public schools.....	142,842	87,371	43,679	131,050
(b) By parochial schools.....	10,843	7,701	3,002	10,703
(c) By other schools and persons.....	13,694	16,669	7,485	24,154
(d) Investigated on officer's initiative...	8,156	6,244	1,610	7,854
<b>Total.....</b>	<b>175,805</b>	<b>117,985</b>	<b>55,976</b>	<b>173,961</b>
<b>2. Total number of cases investigated.....</b>	<b>175,805</b>	.....	.....	<b>174,919</b>
<b>3. Number of different reported cases of truancy investigated.....</b>	<b>14,661</b>	.....	.....	<b>11,488</b>
<b>4. Number of such cases reinvestigated.....</b>	<b>6,755</b>	.....	.....	<b>6,269</b>
<b>5. Number of <i>different</i> children found by attendance officers to have been truants five days or more during the year.....</b>	<b>7,244</b>	<b>5,801</b>	<b>778</b>	<b>6,579</b>
<b>6. Number of such truant children enrolled in public schools:</b>				
(a) Full time regular classes.....	4,946	4,119	586	4,705
(b) Part time regular classes.....	263	243	14	257
(c) Special classes.....	978	583	55	638
(d) Ungraded classes.....	162	113	2	115
<b>Total.....</b>	<b>6,349</b>	<b>5,058</b>	<b>657</b>	<b>5,715</b>
<b>Enrolled in private schools:</b>				
(a) Parochial schools.....	753	655	95	750
(b) Corporate schools.....	139	82	21	103
(c) Other private schools.....	3	6	5	11
<b>Total.....</b>	<b>895</b>	<b>743</b>	<b>121</b>	<b>864</b>

	1909-10	1910-11		
		Boys	Girls	Total
7. Number of times such truants were returned to school by attendance officers.....	14,017	.....	.....	15,048
8. Number of children committed to truant schools by City Superintendent:				
(a) Truants.....	150	132	.....	132
(b) Suspended incorrigibles.....	20	16	.....	16
Total.....	170	148	.....	148
9. (a) Number of children paroled by City Superintendent from truant schools and institutions during the year.....	585	761	2	763
(b) Number who respected parole.....	444	564	2	566
(c) Number who violated parole and were returned to truant schools...	141	197	.....	197
10. Number of cases of truancy probably due to neglect of parents.....	2,154	2,461	508	2,969
11. Number of cases of children incorrigible in school, probably due to parental neglect or lack of control.....	170	234	11	245
12. Number found to be non-attendants and placed in school.....	2,683	.....	.....	3,912
Number of cases of non-attendance due to—				
(a) Indifference of parents.....	1,390	1,053	666	1,719
(b) Poverty.....	391	273	182	455
(c) Sickness in family.....	297	344	271	615
(d) Temporary necessity.....	605	812	311	1,123
13. Number of visits of attendance officers:				
(a) To homes.....	189,731	.....	.....	189,381
(b) To schools.....	33,136	.....	.....	34,767
(c) To stores and factories.....	5,952	.....	.....	7,566
(d) To courts.....	3,012	.....	.....	3,142
(e) To other places.....	6,578	.....	.....	6,961
Total.....	238,409	.....	.....	241,817

	1909-10	1910-11		
		Boys	Girls	Total
14. (a) Number of visits of officers to evening schools.....	506	.....	.....	487
(b) Number of absences from evening schools investigated.....	4,458	4,494	217	4,711
(c) Number of visits to homes of evening school pupils.....	4,560	.....	.....	4,973
(d) Number of visits to business places where evening school absentees were employed.....	363	.....	.....	572
(e) Number of truants and absentees returned to evening school.....	2,814	3,331	90	3,421
15. Number of cases of children of school age referred to attendance officers as "moved," "transferred," "non-attendants," etc., but who could not be found after diligent search.....	.....	5,748	3,431	9,179

The data included in this table suggest problems which not only affect the vital interests of several thousand individual boys and girls in New York, but are of serious social significance to the community as a whole. Properly analyzed, classified, and interpreted, the results of 175,000 investigations into the home conditions, economic status, physical welfare, and school progress of New York's less favored school children ought to serve as an invaluable commentary upon the city's program of education, health conservation, charitable relief, and police protection.

## 2. Inadequacy of Unanalyzed Totals

The statistical summary of the annual report consists of totals, under each heading, for the city at large. As previously shown, no provision is made for exhibiting the subsidiary totals for the several administrative districts under the supervision of district superintendents.

The analysis and comparative statement presented in Tables I-VI of the present study show conclusively that the totals of the published report are not a true index of conditions and methods prevailing in the several districts over which district superintendents have supervisory control. The chief administrative value of such a statistical summary should be to raise specific questions; to answer such questions so far as the necessary facts are available; and to serve as a point of departure for further inquiry where supplementary facts are shown to be needed. As previously noted, no systematic practical use is made of the annual reports of district superintendents for purposes of administration and control; the details being merely merged by clerical assistants into the report of the

associate superintendent. The comments accompanying the statistical tables in the associate superintendent's annual report are, in practically all instances, based upon these undistributed totals, which are quite as likely to confuse as to clarify the real issues which administrative and supervisory officers are called upon to face.

### 3. Defective Arrangement of Statistical Data

Entirely apart from the unreliability of the data entering into the totals of the published report and the inadequacy of the unanalyzed totals, there are serious defects in the arrangement of the items which conceal or obscure the vital problems of administration.

The grouping of the items under five general headings does, in a measure, meet the requirements that are here suggested; but it does not enable the reader to grasp quickly the complete range of each group of facts presented. For example, there is nowhere in the report a complete statement of all cases investigated by attendance officers. The first item in the report, "*Whole number of cases referred to attendance officers for investigation*," apparently includes only those cases that come to attendance officers through the regular channels of public, parochial, and other schools and through the initiative of attendance officers themselves. While this classification accounts for a great majority of cases investigated, it does not appear to include cases received from the commissioner of immigration, the permanent census board, or the state department of labor, for the number of cases reported elsewhere in the report as having been received from these sources exceeds the total number reported here as having been referred "by other schools and persons."

Similarly the results of investigations are not given completely at any one place. It is therefore impossible for the reader to be certain that the entire number of cases received for investigation is accounted for and into just what groups the cases are separated. The total number of cases reported as having been investigated by attendance officers is 174,919. An examination of the report for the details included in this large number shows the following items, though it is not clear in all cases that the items are mutually exclusive:

Different reported cases of truancy investigated.....	11,488
Number of such cases re-investigated.....	6,269
Cases of children incorrigible in school probably due to parental neglect or lack of control .....	245
Found to be non-attendants and placed in school.....	3,912
Absentees from evening schools investigated.....	4,711
Children who could not be found after diligent search.....	9,179
Cases taken to court.....	913
Children discharged from employment by State Department of Labor, and investigated by attendance officers.....	1,768
Children brought to court on charge of truancy only.....	894
Children brought to court on charge of truancy and vagrancy.....	89
Cases referred to Department of Health and investigated .....	690
Cases referred by charitable societies and investigated.....	99
Cases referred by various institutions and investigated .....	591
Miscellaneous complaints investigated .....	206
Cases referred by the Commissioner of Immigration and investigated.....	110
Total (not given in the published report).....	41,164

This total of 41,164 includes all of the groups of cases included in the various totals of the superintendent's report which with any degree of clearness can be assumed to be included in the "total number of cases investigated." This leaves about 134,000 (77 per cent.) of the "total number of cases investigated" for which there appears to be no appropriate classification among the various items of the report showing results.

Similarly the "causes of absence" applying to the various groups of cases investigated are shown at many different places in the 18 tables of the report, but not summarized at any one point. It is therefore impossible to establish a balance between the groups of causes of absence and a total to which the aggregate of these separate causes of absence should agree.

It is likewise impossible to find an exact relationship between the number of cases upon which different kinds of action were taken by attendance officers, district superintendents, the city superintendent, and the courts, and definite totals within which such separate groups are included. There is, for example, no balancing account showing the disposition of the 6,579 different children found by attendance officers to have been truants five days or more during the year; although at different points in the report there are items which account in part for the final disposition of these serious cases. It is not clear from the reports how many of these children were summoned for hearings before the district superintendents, although the assumption may be that all of the 4,860 cases brought before district superintendents were from among the "five-day truants." Again, the 908 cases of truancy and incorrigibility taken to court were presumably included in the number brought before district superintendents, although this fact is not clear from the report.

Owing to this lack of clear correlation between inclusive totals and component subtotals, the impression given by the statistical tables is that of continuous lists of loosely connected items in which there is no method of grouping that gives at a glance the key to the meaning of the facts.

#### **4. Arbitrary Adjustment and Forced Totals**

It has been shown that the value of the annual report as a source of information is seriously limited by the omission of important data; by unanalyzed totals; and by defective arrangement. Its value is further limited by inaccuracies which largely vitiate conclusions that might be drawn from the data presented. Clerical inaccuracies, most of them of slight extent, introduce an element of unreliability into the statistical summary which may, of course, be readily avoided in the future by the careful checking of the totals to the items of the district superintendents' reports. Of 55 items so checked in the preparation of Tables I-VI, 24 show discrepancies in addition.

More serious than such clerical inaccuracies, however, are the arbitrary adjustments which have been made in order to force balances that were assumed to be called for in certain groups of items. The most

serious instance of this sort, which was discovered in the examination of the district superintendents' annual reports, is connected with the second item of the fourth general division of the statistical report, relating to "Labor Law and Compulsory Education Law Cases."

Item 2 of this table, with its subdivisions, is as follows:

Number of children discharged from employment by the State Department of Labor and referred to the attendance officers for investigations:

Boys, —; girls, —; total, —.

- (a) Number of such cases investigated.....
- (b) Number of such children found to be illegally employed but attending school.....
- (c) Number of such children found to have been illegally employed and not attending school.....
- (d) Number of such children placed in school by attendance officers .....
- (e) Number of such children found to have been legally employed (16 years of age, or having employment certificates) .....
- (f) Number of cases not found .....
- (g) Number of such children illegally employed taken to court by attendance officers.....

The clerical force that summarized the annual reports of district superintendents acted on the assumption that subdivision (a) must equal the total of subdivisions (b)-(g). And yet it is obvious that items b-g cannot be mutually exclusive. For example, "children placed in school" in most instances must be included in the preceding item, "illegally employed and not attending school." Similarly children "not found" or "taken to court" might be included in any one of several preceding items. In 18 of the 23 district superintendents' annual reports, the totals of items b-g did not originally agree with the number of cases investigated. The entries under "number of cases investigated" in all of these reports were arbitrarily altered in the central office so that there should be such agreement; as shown in the table on page 43.

The total number of cases of children "referred by the state labor department," as originally given in the reports, was in turn arbitrarily changed to agree with the "number of cases investigated"; and the number of boys or of girls or of both was so altered as to give a total that should agree with the arbitrarily adjusted total of cases referred. The total number of these cases investigated according to the original reports submitted by district superintendents was 1,625 instead of 1,768 as given in the annual report.

DISTRICTS	NUMBER OF CASES INVESTIGATED (SUBDIVISION a)		DIFFERENCE DUE TO ARBITRARY ALTERA- TION OF ENTRIES
	As Originally Given	As Arbitrarily Altered to Agree With Sum of Subdivisions b-g	
28, 30 .....	87	98	11
4, 5 .....	95	105	10
6, 7 .....	57	59	2
8, 12 .....	98	116	18
27, 29 .....	64	75	11
13, 15 .....	88	90	2
20, 21 .....	74	89	15
31, 34 .....	84	81	— 3
39, 40 .....	54	90	36
10, 11 .....	62	70	8
2, 3 .....	47	67	20
14, 18 .....	50	25	—25
23, 24 .....	184	196	12
43, 44 .....	39	41	2
41, 42 .....	16	20	4
33, 35 .....	85	89	4
25, 26 .....	36	39	3
1, 9 .....	72	85	13
Total .....	1,292	1,435	143

The discrepancy in this case between the true and the adjusted total amounts to 143, which is about 9 per cent. of the correct total; but, from the point of view of administrative practice and control, the importance of the matter is not primarily that of a vitiated total, however misleading this total may be. The real significance is rather in a point of view toward facts and administrative responsibility, and in a method of checking and controlling information upon which administrative judgment must rest, that will permit such adjustments to go undiscovered and unchallenged.

To the extent that these examples represent indifference on the part of clerical staff, investigators, supervisors, or administrative officers toward the facts which are assumed to be summarized in the statistical tables, any statement in the reports concerning work done and results accomplished is open to suspicion. No assumption is made, however, as to the extent of such an attitude in the compulsory attendance service. Obviously, if such indifference were at all general it would inevitably react upon the entire service by impairing the confidence and sincerity of every officer and employee in the organization.

### 5. Variation in Definition of Terms Employed

In several instances, the terms employed in the headings of the annual statistical report are variously defined and used by the district superintendents. The headings of four items in the first section of the annual report illustrate the variation.

Item 1 (c).—*"Cases referred by other schools and persons."*

Taken literally, this heading would not include cases received from certain miscellaneous sources such as the permanent census board, state labor department and private philanthropic agencies. The interpretation given by district superintendents to this item varies to such an extent that the total figure given in the annual report is of doubtful meaning and value. Four of eight district superintendents interviewed were uncertain as to just what cases were included in the item, and the associate superintendent in charge stated that no standard of interpretation had been established.

Item 3.—*"Number of reported cases of truancy investigated."*

There is no clear understanding as to the significance of this item. In districts 10-11 the number of cases reported under this heading agrees with the number of "different children found to be truant five days or more" (Item 5). In other districts the two numbers differ, though in some instances by a very narrow margin. The difference in interpretation depends apparently upon whether "different reported cases" is intended to include an individual more than once when repeated investigations have been made of his case.

Furthermore the term "reported" in the caption is interpreted variously; in some instances indicating "probable" or "suspected" truancy from the point of view of principals at the time cases are referred; in other instances "actual" truancy as determined by subsequent investigation. It seems likely, therefore, that this item (11,448 cases) in the annual report is extremely unreliable as an index of actual conditions in the schools. This difference in interpretation may account for the very wide range (1.8 per cent. to 15.9 per cent.) shown in column 12 of Table II.

Item 5.—*"Number of different children found by attendance officers to have been truant five days or more during the year."*

This caption raises the question whether or not a child absent less than five days is to be considered a truant. By some district superintendents the term "truant" is applied to "five-day truants" only; by others to any child absent without lawful excuse and without the knowledge and consent of parents, excluding those illegally detained at home. The term has no clearly defined and uniform meaning in the reports.



Item 7.—*“Number of times such truants were returned to school by attendance officers.”*

This heading is interpreted by one district superintendent (districts 4-5) to agree with the number of truants reported in Item 5. By some attendance officers the corresponding item in the weekly reports is assumed to mean the “greatest number of times any *one* truant was returned to school.” The item is therefore in a measure unreliable on its face.

## VI. Defects of Organization

Having reviewed the administrative defects due to lack of clearly defined standards in records and procedure and to the inadequate basis for administrative control, it is appropriate to consider the definition and distribution of duties or functions as related to personnel; that is, the *organization* of the compulsory attendance service. Reference to the organization chart and the brief outline of functions (Preliminary exhibits 2 and 3) will facilitate an understanding of this discussion.

It will be seen that the associate superintendent nominally having the direction of the compulsory attendance service is responsible to the board of superintendents by whom he is appointed as its committee on compulsory education. To the extent that the board of superintendents exercises actual as well as potential direction in matters concerning the management of the compulsory attendance service, the scheme of organization may be defined as the “committee system,” which, in any field of management, almost inevitably results in uncertainty and delay in reaching decisions and in putting plans into execution.

On the other hand, the associate superintendent is also responsible directly to the city superintendent of schools to whom the compulsory education law gives authority to “supervise the enforcement of this act.” The associate superintendent in many matters acts for the city superintendent, by authority delegated to him by his superior officer. In other matters, as in the commitment of children to truant and parental schools, the city superintendent has not delegated his authority but acts directly in each case. The weekly reports of attendance officers, for example, are addressed to the city superintendent. Much of the business of the central office is carried on in the name of the city superintendent, who theoretically approves the acts of the associate superintendent as of a subordinate officer. The city superintendent may and does, by intervention, disapprove specific acts of the associate superintendent. It would be regarded as entirely regular for the city superintendent to issue orders to any officer in the compulsory attendance service of subordinate rank, either directly or by passing the order down in sequence through successive grades of authority. From this point of view, the organization may be defined as belonging to the “military” type.

To the extent that the military type of control is consistently exer-

cised, the conditions are unfavorable to expert leadership; for such leadership is possible only when a properly qualified individual is placed in charge of each specific function or division of the service, with complete authority and responsibility for the direction of the field to which he is assigned. Under such a system of functional division of authority and duties, any given officer or employee would be subject to direction from as many supervisors as there were functions which he performed—one supervisor for each specific function—but he would not be subject to interference on the part of any one who was not expert in a particular function.

The division of the staff of attendance officers into a "newsboy squad," "court officers," "officers for special assignments," etc., so far as it goes, conforms to this idea of functional organization. Definite location of responsibility, however, is interfered with on the one hand by committee control and on the other by the possibility of an absolute or partial veto from the superintendent of schools.

It is obviously impossible for the city superintendent, the associate superintendent, or the district superintendents to exercise intelligent and expert judgment upon all of the varied problems that constantly arise in the discharge of functions so diverse as those of the compulsory attendance service. Yet this is precisely the responsibility which each of these officers under the present form of organization is required to accept. The weakness of this form of organization is still further emphasized when it is recalled that each one of the administrators and supervisory officers is responsible not only for the diverse functions related to compulsory education, but also for an even greater range of duties connected with the activities of kindergarten, elementary schools, vocational schools, high schools, teachers' training schools, vacation schools, recreation centers, and other divisions of the public school system.

Briefly summarized, then, *the specification and distribution of duties are not such as to fix responsibility definitely upon functional experts, to encourage initiative, and to limit the interference of non-expert authorities in the details of management.* More specifically the defects of organization are the following:

1. There is no one individual in the organization charged with complete authority and responsibility for general administrative control. The associate superintendent assigned to administrative direction, besides being subject to the administrative check of the city superintendent of schools, performs the functions of division superintendent and member of the board of superintendents.
2. The limits of authority and responsibility of each member of the organization are not clearly defined and described.
3. No adequate provision for field supervision and inspection of the work of attendance officers has been made. Supervision by district superintendents is necessarily incidental, by reason of the urgent and heavy responsibilities involved in general school supervision.

This defect was admitted by the Board of Education in its resolution of April 24, as well as by the superintendent in his annual report for 1911. Even if district superintendents had ample time for the work, it is doubtful whether proper organization would hold them responsible for the supervision of attendance officers appointed and controlled by administrative officers at 59th street. According to the city superintendent's report, however, district superintendents are overburdened and are not now and will not in the future be able to give the necessary time to enforce the law.

4. Direct responsibility for the supervision of attendance officers assigned to court work and of the newsboy squad makes it necessary for the associate superintendent either to give considerable time to the details of this work which might be supervised by an officer of lower salary, or to reduce this supervision largely to such perfunctory routine as can be attended to by clerical assistants.

5. Public School No. 120, Manhattan, is entirely detached from the general organization of the compulsory attendance service, although it performs functions similar to those of truant and parental schools and has repeatedly been declared by the city superintendent and other school officers to have passed the experimental stage.

6. The census enumeration of children from 7 to 16 years of age, although intimately related to the investigation of causes of absence and capable of close and economical coöperation with the latter, is separately organized and managed.

7. The organization does not provide for specialization within the staff of attendance officers to correspond fully with the different functions to be performed; for example, there is no special provision made for such functions as coercive discipline, preparation and prosecution of court cases, and service of the kind emphasized by the privately maintained corps of visiting teachers.

8. Systematic provision has not been made for the most effective working relations with the department of health, the state labor department, and other public and private agencies actually or potentially coöperating with the compulsory attendance service. There is no evidence, so far as this inquiry has discovered, of a clearly defined program of functions to be performed by each of these related agencies.

## VII. Undue Emphasis of Police Functions

The compulsory attendance service, as at present organized and conducted, limits its functions very largely to the performance of police functions related to the *enforcement* of school attendance. Its investigations are directed chiefly to the *immediate explanation* and *checking* of truancy and irregularity, rather than to the discovery and treatment of deeper causes. This point of view is not only made evident by the emphasis, in the annual and current reports, which is placed upon the return of

children to school, arraignment of delinquent pupils, and prosecution of parents; and by the relatively small attention to analysis of family influences, physical and mental conditions of delinquents, and coöperation of various social agencies, but is distinctly stated by the superintendent of schools in his letter transmitting to the Board of Education the report on the enforcement of the compulsory education law for the year 1910-11. Commenting upon the relation of the work of attendance officers to that of "visiting teachers" he says, "The function of the former is to *cure* truancy; of the latter, not only to prevent truancy but to cure many other ills that arise in connection with exceptional pupils."

The mere statement of certain facts regarding the absence of pupils in regular classes for the half year ended June, 1911 (Table XIII), suggests questions of great significance regarding the present limited scope of the compulsory attendance service.

**Table XIII—Distribution of Pupils by Grade and Extent of Absence**

All Pupils in Regular Classes February-June, 1911  
(Data Collected by Committee on School Inquiry)

Grades	DISTRIBUTION BY EXTENT OF ABSENCE									
	Number					Per Cent.				
	10 days and less	11-20 days	21-30 days	31-40 days	41 days and over	10 days and less	11-20 days	21-30 days	31-40 days	41 days and over
						Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.
1-A.....	17,215	8,708	5,010	3,188	8,891	40.0	20.2	11.6	7.41	20.6
1-B.....	28,342	10,800	4,938	2,489	3,263	56.8	21.6	9.9	4.9	6.5
2-A.....	24,826	7,743	3,240	1,612	2,186	62.6	19.5	8.1	4.0	5.5
2-B.....	29,970	8,063	3,130	1,572	1,873	67.1	18.0	7.0	3.5	4.1
3-A.....	27,841	6,865	2,690	1,190	1,594	69.2	17.0	6.6	2.9	3.9
3-B.....	30,157	7,146	2,684	1,257	1,667	70.2	16.6	6.2	2.9	3.8
4-A.....	26,943	6,445	2,494	1,194	1,497	69.8	16.7	6.4	3.0	3.8
4-B.....	28,057	6,575	2,552	1,159	1,566	70.3	16.4	6.3	2.9	3.9
5-A.....	25,420	6,285	2,424	1,148	1,546	69.0	17.0	6.5	3.1	4.2
5-B.....	25,312	5,958	2,293	1,083	1,389	70.2	16.5	6.3	3.0	3.8
6-A.....	23,144	5,396	2,069	944	1,320	70.4	16.4	6.2	2.8	4.0
6-B.....	22,530	4,974	1,783	780	1,067	72.3	15.9	5.7	2.5	3.4
7-A.....	20,537	4,088	1,501	666	875	74.2	14.7	5.4	2.4	3.1
7-B.....	18,854	3,655	1,167	514	601	76.0	14.7	4.7	2.0	2.4
8-A.....	16,638	2,828	925	318	403	78.8	13.4	4.3	1.5	1.9
8-B.....	16,620	1,983	491	183	268	85.0	10.1	2.5	.9	1.3
Total.....	382,406	97,512	39,391	19,297	30,006	67.2	17.1	6.9	3.3	5.2

About 90,000 children, it will be seen, were absent during this half year for at least one school month; 30,000 of these having been absent over two full school months. Yet only 6,579 children were reported by

attendance officers as having been truants for five days or more during the entire year. At a time when the attention of school officers is so largely directed toward plans for reducing non-promotion, retardation, and school mortality; when vast sums are being spent on special and ungraded classes and vacation schools, this contrast suggests broad possibilities for the extension and strengthening of attendance work.

The significance to the community of extending the attendance service beyond the mere control of truancy by police methods is further emphasized by the summary of facts regarding the relation of absence to non-promotion, presented in Table XIV.

**Table XIV—Whole Time Classes by Grade and Extent of Absence**  
**Children Not Promoted June 30, 1911**  
 (Data Collected by Committee on School Inquiry)

DISTRIBUTION BY EXTENT OF ABSENCE FOR SECOND HALF YEAR					
Grades	Absent 10 days or less	11 to 20 days	21 to 30 days	31 to 40 days	41 days and above
1-A.....	10.6%	13.4%	19.9%	28.8%	57.4%
1-B.....	7.1	10.5	14.1	19.6	35.3
2-A.....	7.6	10.8	14.6	20.2	32.0
2-B.....	6.4	10.2	13.5	19.6	32.3
3-A.....	7.1	11.7	16.5	20.7	36.0
3-B.....	6.3	10.4	15.1	21.4	35.6
4-A.....	6.7	11.7	15.8	24.7	41.6
4-B.....	6.2	11.6	16.3	25.3	44.1
5-A.....	6.8	12.5	19.7	28.1	47.3
5-B.....	6.1	12.0	19.3	28.7	48.9
6-A.....	6.3	13.8	20.3	30.9	50.3
6-B.....	6.4	12.9	20.2	31.7	54.9
7-A.....	7.7	15.8	24.8	31.3	59.3
7-B.....	6.9	15.9	22.1	39.1	57.7
8-A.....	7.3	14.8	22.4	38.0	59.9
8-B.....	2.8	17.8	25.0	22.4	32.8
Total.....	6.7%	12.3%	17.7%	25.6%	45.8%

See also Dr. Bachman's report on non-promotion.

Nearly one-half of the pupils who failed of promotion were absent over two-fifths of the school term, and 70 per cent. were absent from school at least thirty days during the half year. These data, furthermore, take account only of the pupils who failed of promotion on June 30; the 70,000 children who left school during the year being disregarded.

Important as it unquestionably is to discover and control truancy in its incipency, it is obvious that the occasional truant is not the only problem maker. A conservative program of attendance control must find effective means for dealing with the very large number of children

who, by sporadic absence for trivial causes, not only lessen their own chances for making satisfactory progress in school, but, by requiring an undue amount of the attention of teachers, handicap those pupils who are regular in attendance.

The direction to be followed in developing such a program is illustrated by the service performed during 1910-11 by the six visiting teachers employed by the Public Education Association. The results of this service are presented in a special report included as an appendix to the city superintendent's report for 1910-11 on the enforcement of compulsory education. Of nearly one thousand cases investigated by the visiting teachers, only 15 per cent. were such as would normally have been referred to attendance officers. The complaints concerning the large majority of the children indicated incipient truancy. Efforts were accordingly made to discover and correct the conditions, both at home and in school, that lay at the bottom of irregular attendance and unsatisfactory progress in school, thereby checking truancy at its source.

The report upon the work of the visiting teachers, supplementing the reports of attendance officers, indicates that the greater part of irregular attendance not due to sickness is directly related to parental indifference, ignorance, neglect, or poverty. A constructive program for controlling attendance must therefore be directed largely to the enlisting of parental coöperation and the improvement of those conditions; steps impossible to accomplish by the mere exercise of police functions.

Where actual want is discovered, it is, of course, necessary to invoke the aid of suitable charitable organizations. The most frequent and the most difficult demand in improving home conditions, however, is the education of parents. In many cases they must be led to see the necessity of securing for their children better living quarters, improved diet, longer hours of sleep, or less home work. It is often necessary, also, to make careful school adjustments. These may involve the changing of teachers; the organization of special schools and classes; and even a possible general revision of curriculum to answer the needs of pupils for whom the conventional school activities are ill adapted.

### VIII. Suggestions for the Development of a Broader Program

If the function of the compulsory attendance service be thus broadly and liberally interpreted, and its work extended beyond dealing with superficial and immediate *occasions* of irregular attendance, attendance officers may be expected to deal more intelligently and effectively with the attendance problem. Even assuming, for the moment, that the function of attendance officers is to "cure" truancy, the means of cure are so intimately related to the means of prevention—both involving the constant consideration of active and fundamental causes such as physical and mental defects, economic pressure, and family demoralization—that the combination of the two functions of prevention and cure is an indis-

pensable as well as entirely practicable measure. From the point of view of organization and management, it is suggested that an effective division of functions would be the following:

- a. Preliminary investigation and report.
- b. Preventive treatment.
- c. Disciplinary treatment.
- d. Corrective (institutional) treatment.

The practical application of such a differentiation of functions is considered in proposal number 5 of the following suggested plan for functional reorganization:

### **Functional Reorganization**

With a view to facilitating the economical and efficient performance of the functions involved in a complete and well-ordered attendance service, the following proposals are submitted:

1. That an organization, responsible to the Board of Education, be constituted—to be known as the “Attendance Bureau”—to which shall be assigned all functions directly concerned with (a) the enumeration of children of school age; (b) the determination of the fact of enrollment or non-enrollment of each child so enumerated; (c) the investigation of cases of non-enrollment and non-attendance; and (d) the prevention, treatment, and cure of truancy, non-attendance, and other irregularities of attendance.

2. That administrative responsibility be completely vested in a chief of the attendance bureau, who shall devote his entire attention to the problems of administration and who shall report directly to the city superintendent of schools.

3. That a district supervisor be placed in charge of the attendance service in each of the administrative districts into which the city is divided for the general management of the school system; and that such district supervisors be made responsible directly to the chief of the attendance bureau.

4. That district superintendents be given responsibility for conducting judicial hearings in such cases as may be brought before them on charges preferred by the supervising attendance officers; the decisions of district superintendents in such cases to be executed by the appropriate officers of the attendance bureau's staff; such decisions to be subject to review by the chief of the attendance bureau.

5. That the staff of the attendance bureau be organized, on a functional basis, into the following divisions:

#### **a. Division of Enumeration and Investigation.**

This division, it is suggested, should consist of approximately four staff members in each attendance district, whose duty it shall be—

- (1) To maintain a complete census of all children of school age residing in the respective districts; revising and amending such census currently and continuously.
- (2) To make preliminary investigation of all cases of non-attendance and irregular attendance referred to the attendance bureau, and to report promptly the most readily obtainable facts regarding each case investigated.
- (3) To maintain a list of children reported as moved, not found, or otherwise not accounted for, and to make systematic effort to account for all such cases before they are finally dropped from the record of cases under consideration.

**b. Division of Prevention and Probation.**

The personnel of this division should be selected with special reference to qualifications for effective investigation and interpretation of facts relating to economic and social conditions. The staff of this division, it is suggested, should consist of at least two members for each attendance district, with the following duties:

- (1) To make further and more exhaustive investigation of such cases of non-attendance, irregular attendance, and incorrigibility as may be referred to them by supervising attendance officers, after the preliminary investigation, with the purpose of ascertaining facts regarding the physical, mental, and social conditions affecting each case.
- (2) To make, in each case so investigated, a diagnosis of fundamental conditions which account for the irregularity involved; to outline a plan of treatment for each case; and to take the necessary steps to obtain the intelligent coöperation of principals, teachers, parents, physicians, dispensaries, charitable societies, and other individuals and agencies which may be needed in the proper treatment of each case.
- (3) To confer with and advise parents, teachers, principals, and children in cases of irregular attendance, incipient truancy, and troublesome conduct growing out of strained relations between pupils and teachers and other special causes.
- (4) To act as probation officers and advisers in cases of children placed on probation by district superintendents and children's courts, and of children paroled from truant and parental schools.

**c. Division of Discipline and Prosecution.**

The staff of this division should consist of at least ten officers for the city at large, responsible directly to the chief of the attendance bureau, with the following duties:



- (1) To deal with such cases as may be referred by supervising attendance officers to the chief of the bureau, in which the methods of the division of prevention and probation have failed to accomplish desired results—cases requiring the application of coercive and disciplinary measures either to children or to their parents.
- (2) To prepare all cases brought against children or parents for violation of the attendance laws, and to prosecute such cases in the courts.
- (3) To coöperate with the police department in the enforcement of the newsboy law.

**d. Division of Correction.**

This division should include such institutions for the temporary detention or permanent custodial care of children as may be necessary for the proper treatment of habitual truants and other delinquent children, in cases where other methods of treatment are not advisable or have proven ineffective.

It is suggested, tentatively, that the following provisions are essential to the proper organization of this division:

- (1) A day detention school for each of the twenty-three attendance districts, in which the program of studies and the methods of instruction and discipline shall be specifically adapted to the needs of children commonly regarded as difficult or unmanageable in regular classes.

Public School 120, Manhattan, was established to meet this need in one section of the city, including districts 2 and 3. The district superintendent in charge of these districts has repeatedly commended the experiment in the highest terms, and the city superintendent in his published report of 1910 recommended that "as rapidly as possible other schools of a similar nature be established."

No attempt has been made in the present study to collect data as a basis for independent judgment concerning the soundness of the methods employed in School Number 120. In view of the judgment expressed by the city superintendent and the district superintendent having general supervision of this school, however, the data necessary to support this judgment should be submitted to the Board of Education and provision made for extending to every school district such facilities as may be proved by the history of this school to meet the special requirements of children who constantly tend to enter the ranks of habitual truants and pupils unmanageable in regular classes.

- (2) A parental school for the custodial care of habitual truants and delinquent children who cannot satisfactorily be dealt with in the day detention schools.

The limits of time and opportunity have not permitted the present report to include a systematic study of the methods employed and the results accomplished by the parental school. Incidentally, however, data collected from the institution by another of the coöperating specialists<sup>1</sup> tend to confirm the opinion of the city superintendent and the associate superintendent so far as concerns the efficiency of work in one specific field.

The parental school is not now equipped to handle more than a small fraction of the problem for which it is maintained. The Manhattan truant school and the Brooklyn truant school are admittedly makeshifts which are to be discontinued when the parental school is in position to perform the entire service. A complete and searching inquiry into the methods and results of all the institutions to which children are now committed for custodial care is essential to the development of detail plans which will command the entire confidence of the community and insure the financial support necessary to carry the plans into effect.

#### **IX. Suggestions Concerning Reporting Forms and Classification of Data**

As an example of the disadvantages under which officials are placed by reason of inadequate or undigested information, the failure of the Board of Education to secure an appropriation of twenty additional attendance officers, in the Budget for 1912, may be cited. In spite of the urgent recommendations of the city superintendent of schools and representatives of the Board of Education and the evident willingness of the Board of Estimate and Apportionment to consider the request on its merits, the appropriation was not granted. The request was denied on the ground (1) that competent evidence was not available to show either that additional attendance officers were needed or, if needed, how many were required to meet the entire need; (2) that a reorganization as proposed by the associate superintendent in his report for 1908, and recommended by him in each succeeding report, would make it possible to accomplish with the existing force much if not all the work for which twenty additional attendance officers were requested; and (3) that, in the interest of economy and efficiency, the service should be reorganized before additions to the staff were made.

It is significant that the plan submitted by the committee on special schools, as finally adopted by the Board of Education, for a reorganization of the compulsory attendance service, places chief emphasis upon a revision of methods and procedure rather than upon changes in personnel or laws. Four of the five recommendations provide for (1) uniform records and procedure, (2) daily reports from all attendance officers, (3) special and daily supervision of attendance officers, and (4) a revision of the printed rules to accord with these changes. The other rec-

<sup>1</sup> See Dean Schneider's Report on Vocational Schools.

ommendation concerns the distribution of duties; providing for the assignment of two attendance officers to work at large.

The proposed plan of reorganization thus clearly recognizes the principle that accurate, prompt, and complete information is a prerequisite of efficient administration; and that such information can be made available to supervising officers by a properly devised and controlled system of field records and summary reports, and in no other way. It may be assumed, of course, that records and reports, however complete and accurate in themselves, are only a means to an administrative end; that unless they properly describe and summarize facts that have vital meaning for administrative officers they may defeat rather than promote the purposes of efficient management; and that, unless actually employed for important administrative purposes, they serve no useful purpose.

With a view to facilitating the proposed revision of records and reports, the following forms and scheme of classification are submitted. These are not assumed to provide for all of the necessary data. They are presented rather as illustrations of a method of recording, analyzing, and summarizing such facts as may be shown by further study of the compulsory attendance service to be essential to the purposes of effective supervision and control:

#### **1. Daily Time and Service Report of Attendance Officers**

Inasmuch as attendance officers, in the actual performance of their work, are usually not subject to direct observation of their supervisors, it is important that accurate and detailed records be prepared from which supervisors can determine not only the whole amount of time which attendance officers give to the service each day but the distribution of time among the various classes of service and the specific items within each class.

Form 1 is suggested as a convenient daily record and summary of the necessary facts regarding the time and service of each officer. Provision is made for a separate entry for each item of service as well as for the totals representing each day's work. Only a few minutes of an attendance officer's time each day will be needed to make the entries required. These entries should be made at the time each item of service is rendered so that there need be no transcription. With such a daily service record, supplemented by the record of individual investigations provided for in Form 3, supervising officers may follow in any desired detail the work of each attendance officer.

FORM 1		Attendance Bureau—Board of Education, New York City													
ATTENDANCE DISTRICT		Division of Enumeration and Investigation; Daily Time and Service Report													
No. ....		For ..... 191													
		Rec'd. .... 191													
		(FORWARD TO DISTRICT OFFICE AT CLOSE OF DAY)													
Item	HOUR		TIME DISTRIBUTION							PARTICULARS OF WORK					
	EXACT TIME		NUMBER OF MINUTES ENGAGED							INDICATE THE KIND OF SERVICE RENDERED					
	FROM	TO	School	Home	Empl'r	Street	Court	Office	Travel	TOTAL	NAME	School, Home, Employer, etc.	ADDRESS	REMARKS	
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
31															
32															
33															
34															
35															
36															
37															
38															
39															
40															
41															
42															
43															
44															
TOTALS		No. of Items									I hereby certify that this report is correct.				
											Signature of Attendance Officer.				

Forms 1-6 are adapted from forms prepared by the Bureau of Municipal Research of Philadelphia in cooperation with the Bureau of Compulsory Education of Philadelphia.



## **2. Monthly Summary of Time and Service Reports**

At the close of each day, the attendance officer should enter his daily totals from Form 1 under the appropriate date on Form 2. These entries constitute a cumulative record of time and service, showing for any desired period the total hours or days of service; the distribution of time among the several kinds of service; and the number of items of work distributed into six general classes. Such a cumulative summary provides a ready means for comparing the service record of an officer for a given period with that of any other similar period or to compare service records of different officers for the same period. A monthly summary statement showing the record of each attendance officer would make it possible for any officer to make instructive comparisons of his own record with that of every other officer in the service and would raise questions of relative efficiency which should be of constant suggestive value to supervisory officers. Other uses to which such a summary statement may be put will readily suggest themselves to officials or citizens who desire to study the administrative problems of the compulsory attendance service.

## **3. Report on Investigation of Pupils' Absence**

The form suggested is one which permits the recording, in compact form with a minimum amount of clerical labor, of the facts that would ordinarily be required in a preliminary investigation of causes of absence by officers of the proposed division of enumeration and investigation.

Entries are to be made by school principals under headings indicated by asterisks, and by attendance officers under headings not so marked. By the use of the code of symbols shown on the reverse side of the slip, all the information called for may be legibly recorded on the proposed form three by five inches in size. The form provides for the classification of the entries in such a way as to facilitate the preparation of the daily summary of cases investigated for which Form 5 is designed.

The principal is expected to give the date of each absence, with a statement as to whether the absence was excused or unexcused and the cause of absence where this is definitely known. The entry under "report number" indicates to the attendance officer the number of times a child has previously been reported.

After making his investigation and entering the date of the pupil's probable return, the attendance officer is expected to enter a summary of the record from this slip upon the cumulative record card (Form 4) which is retained in the office of the attendance bureau; the absence slip (Form 3) being forwarded by the district supervisor to the school principal for his information. The principal then transcribes the data reported by the attendance officer to the cumulative record card in his own files.

Form 2.

ATTENDANCE  
DISTRICT

Attendance Bureau—Board of Education, New York City

Division of Enumeration and Investigation; Monthly Summary of Time and Service Reports

No. ....

(FORWARD TO DISTRICT OFFICE AT CLOSE OF MONTH)

For month of ..... 191  
Re'd. .... 191

Day of Month	HOUR		RECORD BELOW AT THE CLOSE OF EACH DAY THE TOTALS OF THE TIME REPORT FOR THAT DAY																
	Began	Finished	NUMBER OF MINUTES ENGAGED					NUMBER OF ITEMS OF WORK											
			School	Home	Empl'r	Street	Court	Office	Travel	Total	School	Home	Empl'r	Street	Court	Office	Total	Farefare	
1																			
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
27																			
28																			
29																			
30																			
31																			
TOTALS																			

RECORD BELOW SUCH SPECIAL INFORMATION IN REGARD TO THE PARTICULARS OF WORK OF ANY DAY AS MAY BE NECESSARY

I hereby certify that this report is correct.

Signature of Attendance Officer.

If a child returns to school on or before the "date of probable return," the principal enters the date of return on the absence slip and returns it to the district supervisor of the attendance bureau, who enters the date on the cumulative record card in his files. The case is then closed so far as the division of enumeration and investigation is concerned.

If the pupil fails to return on or before the "date of probable return," this slip, together with another of the same form giving supplementary information on the case, is sent to the district supervisor. This reopens the case for further inquiry.

#### **4. Cumulative Record of Cases Investigated**

Form 4 is designed as a cumulative record of investigations pertaining to each individual referred to the division of enumeration and investigation. The summary of each investigation is to be transcribed in the office of the principal and in the office of the district supervisor of the attendance bureau; a file being maintained in each office.

By arranging these cards in the files as proposed under the "directions" on the reverse of the form, both the school principals and the district supervisors may provide themselves with the basis for accurate control over cases under investigation and over cases reported upon by attendance officers but not yet returned to school. Record cards of cases under investigation may be arranged according to dates of the original absence slips (date of principal's report) and the attention of the supervisor thus automatically called to any case which is not investigated within any designated time.

The cumulative record card provides the basis for a clear distinction between new and old cases, and between number of investigations (or "cases") and the number of individual children investigated; as well as for an accurate summary of causes of absence and action taken by the attendance bureau.

#### **5. Daily Summary Record for Each School**

Form 5 provides for a daily summary of the main facts regarding the cases received from each school, with the results of investigation by the division of enumeration and investigation and the action taken by the attendance bureau. Such a record for each school separately is an important means of showing the extent and character of coöperation between individual school principals and attendance officers. Only by such a summary can the part taken by school principals in the control of irregular attendance and truancy be clearly shown, and the basis provided for effective supervision of the attendance program as a whole.

The entries in this report should be made daily from the absence report slips (Form 3); the number of "pending cases" each day being those upon which the attendance bureau has not yet rendered reports





## EDUCATIONAL INVESTIGATION

Form 4.

## CUMULATIVE RECORD OF INDIVIDUAL CASES INVESTIGATED

LAST NAME		FIRST NAME		DATE OF BIRTH			PARENTS OR GUARDIAN	
				MONTH	DAY	YEAR		
RESIDENCE				ROOM NUMBER			SCHOOL	DISTRICT
RESIDENCE								
RESIDENCE								
RESIDENCE								

## Cumulative Record of Absences—School Year Ending June 30, 191

REF. NO.	Sessions Absent								DATE OF	RE-PORT	IN-VESTIGATION	PHYS. CERT.	PROB-ABLE RE-TURN	RE-TURN	ACTION TAKEN		OFFICER NO.
	School Summary			Bureau Summary											REF. TO DIV. OF PREV.	PRE-LIMINARY NOTICE	
	EX-CUSED	UNEX-CUSED	TOTAL	DROP NAME	LAWFUL		UNLAWFUL										
					NO.	CAUSE	NO.	CAUSE									
1																	
									MONTH								
									DAY								
2																	
									MONTH								
									DAY								
3																	
									MONTH								
									DAY								

REF. NO.	Sessions Absent								DATE OF	RE-PORT	IN-VESTIGATION	PHYS. CERT.	PROB-ABLE RE-TURN	RE-TURN	ACTION TAKEN		OFFICER NO.
	School Summary			Bureau Summary											REF. TO DIV. OF PREV.	PRE-LIMINARY NOTICE	
	EX-CUSED	UNEX-CUSED	TOTAL	DROP NAME	LAWFUL		UNLAWFUL										
					NO.	CAUSE	NO.	CAUSE									
4																	
									MONTH								
									DAY								
5																	
									MONTH								
									DAY								
6																	
									MONTH								
									DAY								
7																	
									MONTH								
									DAY								
8																	
									MONTH								
									DAY								

## DIRECTIONS

1. Transcribe to this card the data from the absence report slips, Form 3.
2. File in principal's office as follows:—
  - I. Cases under investigation—Alphabetically, by classes.
  - II. Cases investigated.
    1. Child not returned—Chronologically by "date of probable return."
    2. Child returned—Alphabetically.
    3. Name dropped—Alphabetically. (A1. Enrolled elsewhere. Mail District Office.)

to the schools from which the cases were received. A controlling balance is thus established by which attendance officers may be held accountable for prompt investigation and report. The prospect of subsequent verification of data by officers of the division of prevention will serve as a further check upon the accuracy and completeness of reports rendered by officers making the preliminary investigation.

This report is designed to be made in duplicate, one copy being retained in the office of the district supervisor, the other being forwarded to the office of the chief of the attendance bureau.

#### **6. Monthly Summary by Districts (or by Individual Attendance Officers)**

This report calls for the monthly totals of each school in each district and may readily be adapted to summarizing the monthly record of each attendance officer, by arranging in separate groups the totals for all schools assigned to each attendance officer.

It is designed to be prepared in duplicate in the district supervisor's office, one copy being forwarded to the office of the chief of the attendance bureau. The monthly totals for each school are taken directly from Form 5.

The report provides the basis for ready comparison between individual schools, individual attendance officers, and individual districts; furnishes the data for an annual statement of the main facts regarding the preliminary investigation of causes of absence; and thus aids in locating specific administrative problems upon the solution of which the control of school attendance depends.

As already stated, the foregoing illustrative forms are submitted to facilitate the formulation of a comprehensive and coherent system of records and reports. The illustrative forms are designed for use in preliminary investigation, by the proposed division of enumeration and investigation. Record and reporting forms specially devised to meet the requirements of the many other functions of an attendance bureau would of course be needed.

The main features of the suggested forms which may be of service in the preparation of a complete system of records and reports are the following:

- a. Compactness of forms for field records; the absence slips (Form 3) being carried by each attendance officer in a small flexible binder.
- b. Provision for the use of symbols to reduce clerical work to a minimum.
- c. Adaptation of the form used for original notification (Form 3) to serve the purposes of subsequent notification and reference; avoiding unnecessary duplication of clerical work.

- d. Standardization of size and arrangement of forms to facilitate filing and to make it possible to utilize readily the forms themselves for purposes of current control.
- e. Provision for brief cumulative records for individual cases that are likely to call for current attention (Form 4).
- f. Ready means for summarizing field records, and for laying the basis for periodical cumulative reports; the data in current records being classified under the same headings and in the same order as the data required in summarized reports.
- g. Columnar arrangement of figures to facilitate addition and checking of figures.
- h. Subdivision and arrangement of items in such a way as to produce balancing totals and to show pending cases or service for which employees are to be held currently accountable.
- i. Summarizing of data in such form as to facilitate comparisons and to raise questions of administrative policy.
- j. Provision for current records of time and service, so itemized as to show the distribution of the time and service of each employee under uniform and significant headings.
- k. Summarizing of time and service records in such a way as to facilitate comparisons and administrative control.

### **X. Suggestions for Further Study**

On account of limitations of time and opportunity, this report has covered only one specific group of the administrative problems with which the compulsory attendance service is concerned. The criticism and suggestions have been directed, in the main, toward the first steps which the Board of Education itself proposes to take toward a reorganization of the service; that is, toward a revision of the system of records and reports and more effective methods of supervision. Adequate records and efficient supervision are important first steps because they will not only insure immediate improvement in the service, but will make possible the intelligent and continuous study, by the compulsory attendance service itself, of its own administrative problems. Through such continuous self-analysis, and in no other way, may healthy and permanent growth in the service be assured.

The following suggestions, in outline form, are submitted as illustrations of subjects for further study in several divisions of the general field that have not been specifically treated in the present report:

School No..... District No.....

Record for Month of.....191

Month	CASES FOR INVESTIGATION				Cases Investigated A, B, C,	Absence Slips Returned to School After Investigation by Bureau	Transfers within Public School System		Other Admissions	Ref. to Div. of Prevention	Preliminary Notices	
	Pending	RECEIVED					Total	From				To
		New	Old									
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
Total												

€

**Outline of Suggested Subjects for Further Study**

- 1. As to the supervision of children paroled and placed on probation.**
  - a. Do attendance officers obtain adequate information concerning the progress of children under supervision?
  - b. Is systematic provision made for the conference and counsel needed by children under supervision?
  - c. Is systematic provision made for transferring pupils in cases where the attitude of teacher or principal is prejudicial to the interest of pupils?
  - d. Has the practice of attendance officers been made reasonably uniform and consistent with respect to the supervision of children on parole and probation; considering specially—
    - 1.) The number of children supervised by each officer.
    - 2.) The length of time children are kept under supervision.
    - 3.) The character of supervision given—frequency of interview, kind of evidence of progress required, etc.
    - 4.) The conditions upon which children are recommended for discharge from probation or parole.
    - 5.) The steps taken to secure coöperation of principals, teachers, medical inspectors, and social agencies.
- 2. As to the placing in school of non-attendants found on the street.**
  - a. Is adequate inquiry made as to physical condition, home conditions, and other influences determining non-attendance?
  - b. Are the facts so ascertained made available to principals and teachers?
  - c. Is the coöperation of the appropriate civic and philanthropic agencies sought and obtained?
  - d. Has the practice of attendance officers, in the discovery and treatment of cases of non-attendance, been standardized?
- 3. As to the hearing of cases by district superintendents.**
  - a. Do superintendents take the initiative in calling hearings or is such initiative left to attendance officers?
  - b. Do superintendents require full reports from attendance officers and direct testimony of parents, teachers, and delinquent children themselves as a basis for judgment in dealing with cases?
  - c. Is the practice of superintendents prompt, uniform, and effective concerning the disposition of cases? (with special reference to):
    - 1.) Cases discharged for lack of evidence.
    - 2.) Cases discharged with reprimand.

- 3.) Cases placed on probation.
  - 4.) Cases committed to truant schools.
  - 5.) Cases recommended for prosecution.
4. **As to the prosecution of parents and of truant and incorrigible children.**
- a. Is the initiative in bringing cases before courts properly located and exercised?
  - b. Are cases so prepared and conducted as to insure adequate consideration by the courts?
  - c. Is there a reasonable degree of uniformity in the percentage of cases successfully prosecuted?
  - d. Is advantage taken of opportunity for bringing cases in courts especially qualified to hear children's cases; or of designating special days for the hearing of truancy cases?
5. **As to the enforcement of the child labor, mercantile, and newsboy laws.**
- a. Is the distribution of authority and responsibility made as contemplated in the laws between—
    - 1.) The compulsory attendance service?
    - 2.) The New York health department?
    - 3.) The city police department?
    - 4.) The state department of labor?
  - b. Is an effective plan in force to secure the coöperation of—
    - 1.) The several official agencies, city and state, charged with the enforcement of the law?
    - 2.) The child labor committee and other private agencies?
  - c. Are the penalties imposed by the courts, through the efforts of attendance officers, such as to create respect for the laws?
6. **As to the administration of truant schools and parental schools.**
- a. Is the physical equipment well adapted to the special requirement of—
    - 1.) Housing of residents?
    - 2.) Ordinary schoolroom instruction?
    - 3.) Industrial and agricultural training?
    - 4.) Physical training?
  - b. Does the program of studies meet the special requirements of truants, and does it otherwise conform to the best educational practice?
  - c. Are the methods of instruction, government, and discipline such as to develop self-control, respect for law, and capacity for co-operation?



- d. Is there adequate provision for medical inspection and the treatment of physical defects?
- e. Is there adequate provision for sanitary inspection and supervision?
- f. Does the daily régime of sleep, diet, work, and recreation conform to established standards of hygiene?
- g. Do the records maintained furnish accurate and sufficient information as a basis for administration?
- h. Is the available information intelligently used for purposes of supervision and control?

**7. As to general administration and legislative control.**

- a. Is a clear distinction made between the functions of the Board of Education and its Committee on Special Schools (legislation, criticism, advice) and the functions of the Superintendent of Schools and the Board of Superintendents (administration)?
- b. Is information currently and promptly available concerning—
  - 1.) The results accomplished by each member of the staff?
  - 2.) The results accomplished in each branch of the service?
  - 3.) The relation of truancy, irregular attendance, and incorrigibility to—
    - a.) Physical condition of pupils?
    - b.) Home conditions of pupils?
    - c.) Retardation of pupils?
    - d.) Age and sex of pupils?
    - e.) Program of studies?
    - f.) Efficiency of teaching and supervision?
    - g.) Part-time attendance?
    - h.) Attendance officer's efficiency?
    - i.) Probation and parole?
    - j.) Prosecution and commitment?
    - k.) Fines imposed upon parents?
  - 4.) The cost of each activity per unit of work done and results accomplished?
- c. Are the available facts currently utilized for purposes of legislation, criticism, advice, and administrative control?

**APPENDIX I**

**Recommendations of Superintendent Maxwell and of Associate Superintendent Shallow regarding the compulsory attendance service, as found in the published annual reports of the City Superintendent of Schools for the years 1907-1911.**

**Associate Superintendent Shallow—1907**

I recommend that the city charter be so amended as to bring [the attendance officers] under the provision of a retirement law.

I have requested . . . the appointment of at least twenty additional attendance officers for the year 1908 [77 employed 1906-1907].

There is urgent need for a complete and thorough revision of the compulsory education law; with provisions (1) to compel children to attend school between the ages of seven and sixteen years; (2) to compel certain children, unless excused under regulations, to attend school from the beginning of the term in September to the close of the term in June; (3) to compel parents to provide for the proper medical and physical needs of their children so that they shall be in fit physical condition to attend school; (4) to fix responsibility for the enforcement of this law by bringing all cases of violation of the compulsory education law, either by children or parents, before children's courts only; (5) to impose a fine upon persons who employ children unlawfully, and not "a penalty" as provided in the present law; (6) to impose a fine on parents for first and second violations of the compulsory education law, and to commit such persons to jail until the fine is paid; (7) to make attendance upon evening school optional.

We need in the law a better definition of truancy or illegal absence from school.

A permanent school census bureau should be established.

**Superintendent Maxwell—1907**

I heartily indorse the . . . recommendations made by Mr. Shallow as to amendments that ought to be made to the Compulsory Education Law.

The remaining buildings [for the parental school], as they are urgently needed, should be undertaken as soon as possible. A home for the principal should be erected at once.

**Associate Superintendent Shallow—1908**

After years of observation of the work of attendance officers under the present regulations, I am convinced that our method of doing work is grossly defective. It is not businesslike.

Most of the officers now report only once each week to their district superintendent; some report twice a week, and practically the rest of the time their work is done as it best suits the individual officer.

Notwithstanding the fact that these employees are under the general regulations of the by-laws and under the general control of the city superintendent of schools, and are required to forward weekly, monthly, and annual reports to this office, yet systematic and efficient work is lacking. The results are not commensurate with the amount expended for attendance officers' salaries and disbursements. I recommend that the work of the attendance officers be reorganized as follows:

First. Officers should be detached from the offices of the district superintendents, thereby relieving the district superintendents from much work in connection with the enforcement of the compulsory education law. The conducting of hearings in cases of truancy and incorrigibility should remain with the district superintendents. This would permit the superintendents to give more time to supervisory duties.

Second. The territory within the City of New York should be divided into a suitable number of large precincts and a force of attendance officers placed in each precinct under one of their own number, as a commander. All officers should report to this commander at the beginning and at the close of each day's work, and receive from him all cases for investigation.

Third. Principals of schools should report all cases of absence and truancy to the commander of the precinct, and he should be held strictly accountable for the attendance of all children within his precinct. The commander should be displaced and returned to the ranks whenever conditions in the district are not satisfactory.

#### **Superintendent Maxwell—1908**

[Nothing in Superintendent Maxwell's recommendations concerning compulsory education.]

#### **Associate Superintendent Shallow—1908**

Truant schools and parental schools are necessary for certain children. . . . But the institution is a poor place at best and no child should be committed if he can be saved in any other way.

The maintenance of truants in this school [the Manhattan Truant School] after three more cottages are built at the Parental School would not seem justifiable and I recommend that the institution be discontinued as a place for the maintenance of truants and reorganized as a day school for truants and other delinquents.

With an adequate force of officers and an organization formed on the lines which I indicated in your Tenth Annual Report, truancy and non-attendance in the City of New York may be reduced to a minimum. [The Board of Estimate was requested to furnish \$18,000 for twenty ad-

ditional attendance officers. Eighty-four attendance officers were employed during 1908-1909]. I recommend that the Board of Education favor the placing of attendance officers under the provisions of a pension law.

There is urgent need for three, if not more, cottage homes for the boys at the Parental Home at once.

#### **Summary of Recommendations—1908**

1. That an adequate force of attendance officers be employed.
2. That these officers be properly organized.
3. That the Manhattan Truant School be reorganized as a day school for delinquent pupils.
4. That additional day schools for delinquents be established wherever possible.
5. That necessary repairs be made at the Brooklyn Truant School, and that the site be used for high school and playground purposes when no longer needed for a truant school.
6. That a dentist and an oculist be employed to visit the truant schools.
7. That provision be made for retiring old and disabled attendance officers on pension.

#### **Superintendent Maxwell—1909**

The chief difficulty in enforcing the compulsory education law continues to be the reluctance of magistrates to impose on parents and employers who are at fault the penalties prescribed by the statutes.

[The Brooklyn Truant School], as it is housed in an unsuitable building, should be dispensed with as soon as possible.

There is no longer any reason why the Manhattan Truant School should be maintained as an institution for boarding and lodging truants. It should, in my judgment, be reorganized as a day truant school after the model of Public School No. 120, Broome street, Manhattan, which has been so successful in the reformation of truants.

#### **Associate Superintendent Shallow—1910**

I regard the failure to punish parents [by city magistrates] as the greatest obstacle to the proper enforcement of this law. [17 per cent. found guilty.]

I am convinced that the law relating to the proof of the date of birth of applicants for employment certificates should be amended.

The urgent need for additional cottages at the Parental School is apparent to all. We need also a small building for an emergency hospital.

In my report of two years ago I recommended that a force of attend-

ance officers be organized in a more efficient way. I respectfully renew this recommendation. In my opinion the work could be more efficiently done through such an organization.

#### **Superintendent Maxwell—1910**

I recommend that the necessary buildings to house and teach all of the so-called incorrigible truants in the city be erected on the grounds of the Parental Home at the earliest possible date.

I recommend that as rapidly as possible other schools of a nature similar to Public School No. 120 be established.

It is hoped that an arrangement may be made with the police department by which, when an officer finds a child who is a truant or non-attendant, the police officer himself may at once place the child in school.

I think it would not be too much to ask high-school teachers to visit the homes of all such children [who register in the high schools in June and who do not return to school in September] and find out the facts before their names are reported for truancy.

#### **Associate Superintendent Shallow—1911**

The [newsboy] law should be amended so that parents who allow their children to violate it, after warning, may be fined.

I am convinced that the law relating to the proof of the date of birth of applicants for employment certificates should be amended. [Quoted from 1910 report.]

#### **Summary of Recommendations—1911**

1. That part of the labor law which provides for the regulation of the selling of newspapers and magazines by boys between ten and fourteen years of age should be amended so as to make parents responsible for permitting their children to sell papers illegally. The penalty for these violations now falls on the child alone.

2. We should have an officer assigned to the work of investigating home conditions before boys are paroled from truant schools; and visiting boys who have been paroled or discharged; and, where possible, finding places of employment for such boys.

3. The methods of making and keeping reports of compulsory education work by district superintendent and attendance officers should be revised and made uniform.

#### **Superintendent Maxwell—1911**

I recommend a revolutionary change in the organization of the Compulsory Education Department . . . that it should be removed from the special direction of the city superintendent, that it should be placed under the general direction of the Permanent Census Board, and that it

should be administered (subject to the general direction of this board) by the secretary of the Permanent Census Board. My reasons for this recommendation are the following:

1. Our district superintendents are overburdened with official duties. Too much of their time is given to the enforcement of the compulsory education law and the supervision of the attendance officers.
2. There is now duplication of work and waste of time as between the attendance officers and the police officers assigned to the Permanent Census Board . . . [and] valuable time is lost between the date of the report [by police officers] and the date of the reinvestigation [by attendance officers].
3. It will be more feasible to obtain a much needed increase in the force of attendance officers, when these officers are charged with the duties both of taking and amending the census and of enforcing the law.
4. The change will bring the great strength of the Police Department to reinforce the administration of the compulsory education law.

The facts and statistics presented in this [Superintendent Shallow's] report show conclusively the advisability (a) of largely increasing the accommodations of the parental school, and (b) of increasing the number of attendance officers.

## APPENDIX II

### Abstract of the Chief Requirements of the Compulsory Education Law

The compulsory education law of the State of New York requires:

1. That every child between eight and sixteen years of age, in proper physical and mental condition to attend school, shall regularly attend a school in which at least six common school branches are taught, or shall receive equivalent instruction elsewhere; provided
2. A child between fourteen and sixteen years of age to whom an employment certificate has been duly issued and who is regularly and lawfully engaged in useful employment is exempted from attendance upon day school.
3. That a boy between fourteen and sixteen years of age who is regularly and legally at work, but who has not completed the course of study prescribed for the elementary schools, shall attend a public evening school, or school giving equivalent instruction, for a prescribed period each year.
4. That persons in parental relation to a child required by law to attend school shall cause the child to attend; failure to comply with this requirement being punishable by fine or imprisonment.
5. That no person, firm, or corporation shall employ a child who

is not legally entitled to be so employed; and that a person, firm, or corporation employing a child between fourteen and sixteen years of age, and who is required under the law to attend an evening school, shall display in the place of employment a certificate, which school authorities are required to furnish, showing that the child is attending an evening school as prescribed by law; a penalty of fifty dollars for each violation of these provisions being imposed by the law.

6. That teachers shall maintain accurate records of attendance, showing each day's attendance and the number of hours in each day thereof; and that such records shall be open to the inspection of attendance officers or other persons authorized by the school authorities.

7. That the school authorities shall appoint one or more attendance officers to enforce the provisions of the law; and that the Superintendent of Schools shall supervise the enforcement of the law.

8. That attendance officers may arrest without warrant and deliver to parents or teachers any child found to be unlawfully absent from school.

9. That the school authorities may establish schools or separate rooms in public school buildings for habitual truants, or pupils who are insubordinate, disorderly, or irregular in attendance; and may provide for the confinement, maintenance, and instruction of pupils in such schools; and may, with the written consent of persons in parental relation, order a child to attend such a school or to be confined therein for a period not exceeding two years, or until the child is sixteen years of age; or may order such a child, under similar conditions, to be confined in a private school or institution upon such terms of compensation as may be agreed upon.

10. That, if the persons in parental relation to such a child shall not consent to the confinement of the child in a school or institution, the child may be proceeded against as a disorderly person and may be sentenced by the court to be confined in a school or institution for a period not exceeding two years.

11. That the confinement of pupils in schools for truants, insubordinate, and disorderly pupils shall be conducted with a view to the improvement and to the restoration, as soon as practicable, of such a pupil to the institution elsewhere which he may be lawfully required to attend; that industrial training shall be furnished in every such truant school; and that the school authorities shall have authority to parole at any time any truant committed by them.

Closely related to these provisions are the requirements of the laws regulating the employment of children in street trades and defining the conditions under which children may be employed in factories and mercantile establishments, as follows:

12. That police officers and the regular attendance officers appointed by the Board of Education shall enforce the provisions of the

article defining the conditions upon which children may sell newspapers on the streets or in public places.

13. That no child shall be employed in factories or mercantile establishments unless an employment certificate shall have been issued by the commissioner of health and filed in the office of the employer.

### **APPENDIX III**

#### **Distribution of Functions Among the Official Agencies Charged With the Enforcement of the Compulsory Education Law**

##### **1. Permanent Census Board**

Ascertains by actual enumeration the children subject to the provisions of the compulsory education law; collects and makes currently available information concerning all children between the ages of seven and sixteen years of age.

##### **2. City Department of Health**

Issues employment certificates to children between fourteen and sixteen years of age, who have met the prescribed conditions as to school attendance and educational advancement.

##### **3. Compulsory Attendance Service**

Established and maintained by the Board of Education, its responsibilities being:

- a. To ascertain the facts regarding the enrollment, attendance, and mental and physical conditions of children included in the census enumeration.
- b. To undertake, by appropriate constructive measures, to prevent truancy and irregularity of attendance among pupils enrolled in schools and subject to the provisions of the law.
- c. To apprehend and by proper disciplinary means compel the attendance of pupils found to be unlawfully absent from school.
- d. To institute and conduct prosecution proceedings against children, parents and employers who violate the provisions of the compulsory law.

##### **4. Truant and Parental Schools**

Established and maintained by the Board of Education for the segregation and special treatment of habitual truants and insubordinate or disorderly pupils.



**5. State Department of Labor**

Responsible for the enforcement of the provisions of the State laws concerning the employment of children in factories and mercantile establishments.

**6. City Department of Police**

Jointly responsible, with the compulsory attendance service of the Board of Education, for the enforcement of the laws regulating the employment of children in street trades.

**7. Children's Courts and Magistrates' Courts**

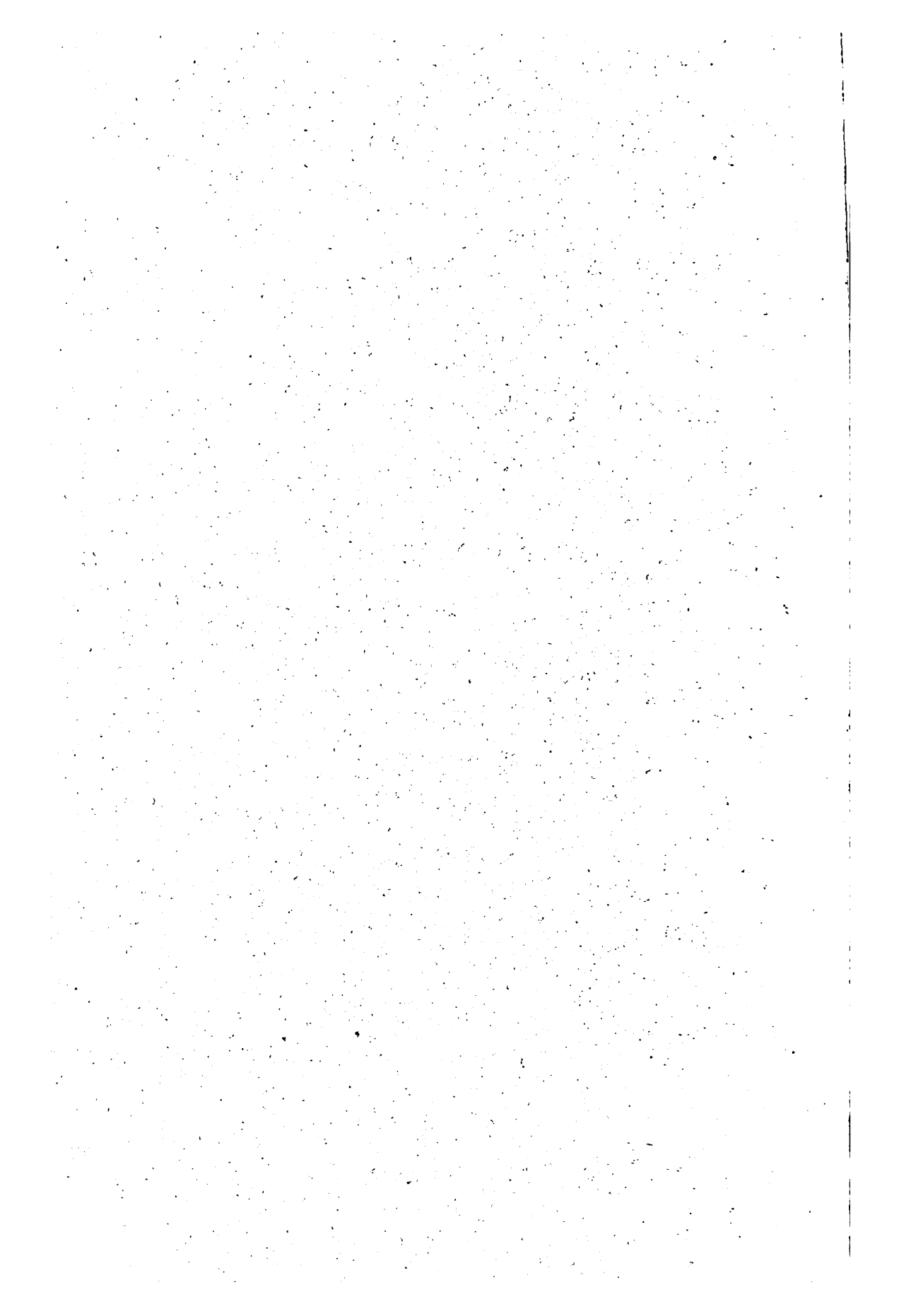
Responsible for the hearing and disposition of cases of children, parents, and employers brought before the courts on charges of violating the compulsory education law or the laws regulating the employment of children.

**8. Supplementary Agencies**

In addition to these official agencies, there are numerous public and private organizations, equipped and ready to render service, which might supplement and reinforce in many ways the work of the seven official agencies named.











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